THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

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"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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NOVEMBER.

"Ere, in the Northern gale,
The summer tresses of the trees are gone,
The woods of Autumn, all around our vale,
Have put their glory on.

"I roam the woods that crown
The upland, where the mingled splendors glow,
Where the gay company of trees look down
On the green fields below."

Work for the Month.

It is presumed that the seeding of all fall crops has been some time completed, and that no further work remains to be done in securing the tobacco. The saving properly the corn and fodder, and securing them against depredation and damage; the securing of potato and other root crops, and general preparations for winter will command attention. If leisure can be found, the spring work may be much forwarded by breaking any old sod land, and, if it be stiff clay, with advantage to the next year's cultivation.

TOBACCO.

The tobacco as it cures should be as much protected as circumstances may admit against rain and high winds. All exposure to fogs or damp weather injures the appearance of the crop, and high winds break and deface it when it is dry. As soon as the stems of the leaves are free from sap, the tobacco is sufficiently cured for stripping from the stalks, and every moist season should be availed of for the purpose. The earlier this work can be done, the better on every account. Tobacco loses in weight and quality while hanging in the house; and it is very important that it be prepared for market at the earliest practicable time, for these reasons, as well as because we should be prepared to take advantage of the early market, and have the preparation of the crop out of the way of spring work.

In stripping let every attention be given to the proper sorting of the different colors, and the utmost neatness be observed in tying and handling. It is not generally known how much the appearance of a sample depends on these apparently small matters, and, consequently, the sale of the crop.

CORN.

The corn crop is now in condition to be secured. As long as it is in the field it is liable to loss from various sources, and the gathering should be pressed forward to get it under lock and key.

Fodder, after separating the corn, should be hauled to where it may be wanted for feeding, and properly stacked. If practicable, the stalks should be fed early, that their decomposition may be advanced by the tramping they may get through the winter. If blades have been preserved in proper season they make the best fodder for working horses in hot weather, and a portion should be preserved for that purpose.

POTATOES AND OTHER ROOT CROPS.

These should all now be promptly gathered and made secure from frost, except such as are not damaged by exposure. Parsnips and salsify are better for the frosts of winter, and may be dug only when wanted. Ruta-baga

and other turnips are not hurt by the moderate frosts of this month, but should be got up before the ground freezes hard. If not stored in a-cellar, the best and safest way is to pile them in conical heaps, on top of the ground, where it is dry and well drained, and covered well with straw and earth. This makes them more recure, if well covered, than when put in pits in the ground. Twenty to fifty bushels may be put into a heap. Potatoes should not be exposed to sun and air longer than necessary to dry off the external moisture. Their quality is very soon impaired, especially by the action of light. Ruta-bagas should be stored where convenient for feeding. They require less covering than potatoes—indeed, are not seriously damaged by pretty hard freezing. If potatoes are not thoroughly protected against frost they will be destroyed, and before severe weather sets in they should have another covering of straw upon the earth first used, and then an additional covering of earth.

HOGS.

Let no time be now lost in fattening pen hogs. Let the best practicable economy be used in feeding. If grinding of the corn can be effected great saving will be made in feed, and if it can be boiled or steamed, there will be still greater economy. But if neither be practicable, at least have the corn thrown on a close plank floor, when everything will be eaten clean, and no waste from tramping in mud or dirt. Fattening hogs should be made in all respects comfortable; should have a dry but not too warm bed to sleep on, sufficient protection against weather, with shed opening to the South, and be well supplied always with clean water.

BEEVES AND SHEEP.

For the same reason, all stock to be prepared for the butcher should now be fed with the utmost regularity. The same food makes much more meat in moderate weather than when it is cold. Our observation teaches us that in the moderate fall weather there is peculiar aptitude in our domestic animals to lay on fat. They are free from the annoyauce of insects, and the temperature combines with this circumstance to give them comfort and quiet, two necessary aids to improvement in condition. Both sheep and beef cattle must, therefore, be fed early, though they cannot be forced so rapidly as hogs.

WINTER ARRANGEMENTS.

These should include everything necessary for the comfort and health of animals. The confinement we necessarily impose on our stock is an unnatural condition, and they are liable to suffer more or less, unless we give them the most judicious attention, after providing suitably for their comfort. They must have protection from the direct pelting of storms and from the prevailing cold winds. For horned cattle, well covered sheds, open only to the South, are perhaps, on the whole, the best winter accommodation. Not that there would be the same economy of food as in close stables, but because of the vital necessity of the amplest supply of fresh air, and the difficulty of furnishing this in close stables, without exposure to cold draught, which may produce dangerous inflammatory diseases.—Cattle seem to suffer little from cold if they be kept dry, and this latter point should have special attention. All water from the roof should be well thrown off, so that it may not interfere with their comfort, nor should they at any time be allowed to plunge through mud to get to water, or under pretense of any necessity of making manure of the coarse material of the farm yard. Cattle should be well supplied with dry bedding; working oxen, milch cows, and calves, should have separate apartments. Horses should, if practical, have boxes where they may freely turn themselves, and not be tied to halters or confined in stalls.

Sheep, unless they are being fed for the butcher, should not be confined at all, but should have a shed to which they may have access from bad weather. They are the most healthy when they have the largest liberty. Provision, of course, must be made for ewes having lambs, that they may be entirely protected against aggression of every sort.

Stock hogs should have accommodations apart from other kinds of stock, with shelter open to the sun, and dry bedding. If they can have a woodland range at the same time, it is the best provision that can be made for them. Let them by no means be allowed to lie in heaps of manure, or filth, which cause diseases of the skin and other affections.

WATER.

Water should, if possible, be provided for stock in the yards, that they may be well supplied without plodding through mud, or sliding

on ice. While subsisting on dry food there is much greater necessity than at other times for plenty of water, but, unless the supply is convenient, cattle will often consent to go without it for a long time, sooner than overcome the obstacles to getting it.

MANURES.

During the winter months large accumulations of manure can be made, if the materials be gathered with diligence. If compost be needed, let the stable manure be composted with wood's mould, or any other good, rich earth. The manure may be thus greatly increased in quantity. But mere accumulations of coarse, raw material in the yards, do not effect that purpose, unless there is a due proportion of rich manure with which to compost them.

The Vegetable Garden.

NOVEMBER.

Asparagus.—Cut off now the tops of asparagus and clear them away from the beds with all weeds. Give the beds a dressing with salt sufficient to whiten them slightly, and cover with two inches of good compost. New beds for a fresh supply of plants should be treated in the same way.

Cabbage and Cauliflower.—If you have plants of these under frames, give them the benefit of air in all moderate weather. If set in beds or borders, they may be protected by a light frame-work set on forks, and covered with cedar or pine brush. Let the covering be twelve inches above the plants for a free circulation of air. It is not desirable to have the sun shine on them, and it is better not to have alternate freezing and thawing. To preserve winter cabbages, take them up on a dry day, and turn upside down to drain. Make trenches on dry, well drained ground, and bury them up to the leaves, picking off all rotten and broken leaves. Make a shelter over them that will turn the water and protect from sun.

Roots.—All such as are wanted for family use in winter should be stored in a cellar and kept well covered with straw; except those that are better preserved in the ground, such as parsnips and salsify.

Lettuce.—Lettuce, to be protected under frame, should now be planted, and protected against frost, but allowed plenty of air in all moderate weather. Some of the varieties stand well without any protection.

Spinage.—The spinage, if not already so treated, must be well thinned to about four inches, and thoroughly cleared of weed.

Celery.—There is much difficulty in getting up celery in severe weather. If managed as follows the difficulty will be obviated. Take up carefully two rows of every three, cut down with the spade six inches from the third row, on each side, and set the removed plants in these, covering to the top of the leaves with earth. Before hard frost, on a dry day, cover the whole well with straw, and throw a good layer of earth upon it. On breaking this layer the celery can be got out without difficulty in the severest weather.

Manuring.—Manuring for the coming season can be now done, when there is leisure, to great advantage. The plats may be well covered with coarse manure or litter, to be raked off in spring if unfit for chopping into the soil. Composts should be made from all available matters, especially of the kitchen waste, ashes, soapsuds, house slops, &c., this compost may be undisturbed during cold weather, but should be stirred and mixed well several times before being used.

The Flower Garden.

Remove from the Flower Garden all decayed annual plants, and cut down to within four inches of the ground, all perennial ones; these with leaves and weeds raked from the surface, thrown into a heap, will, in time, form an excellent compost for tender plants. Collect all plant stakes, tie together and put them away for next year. Manure and dig flower beds and borders, leaving them rough till spring.

Dahlias.—As soon as the leaves and flowers are killed by frost, cut off the plants to about ten inches from the ground, and leave them till the roots are well ripened. They should be taken up before hard weather sets in; choosing a dry day for the purpose; clean off all earth from the roots, and store them away in a dry cellar.

Chrysanthemums.—Those in pots should be freely watered, and kept in an airy part of the house where they will continue to bloom.

Mignonette—if in small pots, should now be shifted into larger ones; use light earth and drain the pots well.

Double Sweet Scented Violets—in frames, should receive abundance of air; stir up the surface of the bed, and top-dress with well rotted leaves or manure.

Roses.—Continue to put in cuttings and pot off all such as have made roots. Take out of the ground and put in pots such plants as you wish to bloom early in spring in the house.

Green House and Conservatory.—It is to be presumed that all the plants belonging to these have been taken in and neatly arranged during the last month. Give plenty of air in mild weather.

The Fruit Garden.

Planting.—All the sorts of hardy fruit may now be advantageously planted, if the soil be dry. The ground should have been put in thorough order by ploughing and manuring. In this case very little manure is wanted about the trees when planted. Neither should deep holes be made, which in stiff lands become receptacles for water. Some of the thriftiest and finest trees we have ever seen were planted by setting the young trees on the very surface of the ground and throwing soil enough upon the roots to give them ample covering. If this be considered an extreme plan, we do not doubt it is a much safer one than that of burying the roots very deeply in holes. Apples, pears, quinces, plums, cherries, walnuts, may be planted advantageously in the fall. Peaches, apricots, nectarines, may be better deferred till early spring. Raspberries, currants, and gooseberries, may be planted. The two latter grow very readily from cuttings, which may be put down now. Every family should have a few fig trees planted on a Southern exposure against a wall. They frequently bear well in this latitude without protection, but a few might be sufficiently protected to ensure a crop.

Pruning.—Apple, pear, and other hardy fruit trees may be pruned this month if convenient.

Strawberry Bed.—If the old strawberry bed has not yet been attended to, have it thoroughly cleaned of weeds, grass, &c., and well dressed with good manure.

Grape Vines.—These may be planted now, or may be got from the nursery and well protected in trenches till February.

Staking.—All newly planted trees should have well driven stakes and be bound to them with wisps of straw.

Advice to Beginners in Fruit-Culture.

I am in constant receipt of letters asking advice in regard to fruit culture. These requests come mainly from young men who wish to engage in the business, but have little or no capital to begin with. Many of them appear to think that to secure a fortune it is only necessary to procure a piece of land and plant it with fruit trees or bushes. But as this is a very erroneous view of the subject, I take this opportunity to point out some of the difficulties which every successful fruit-grower has had to overcome before he has been able to make the business pay a profit upon the investment.

The first thing to be decided, after procuring the land on which to grow the fruit, is what varieties are best adapted to the location and soil. We all have our preferences in regard to kinds; and we may desire to cultivate none but the very best in quality, or those of large size. But in fruit culture, climate and soil are very often all-powerful; and we are compelled to grow what we can, and not what we most desire. It is just here that we find the great stumbling-block of pomology; hundreds of men have gone into fruit culture with more enthusiasm than wisdom; consequently they have no time to seek advice, nor to consider whether certain varieties or species were adapted to their location or not; but they planted largely of everything that was known to be good. Now, is it any wonder that such men fail in making fruit culture a profitable business? They certainly would not succeed in any other employment, if they were to adopt a similar system. It is quite probable that the principal reason why beginners in fruit culture make so many blunders, is that they start out with the idea that it requires but very ordinary skill to accomplish the greatest feats ever performed in horticultural science; the acorn becomes an oak without the aid of man; the wild grape-vine climbs the tall tree, and there produces fruit, though never pruned or cultivated. Then why should we talk so much about the science and practice of horticulture when it is all so very natural? Almost every novice in fruit culture takes this view of the subject; and I regret to say that there are a few men having some experience who do much toward leading beginners into the same path by recommending little or no cultivation, forgetting that nature has one aim in producing her fruits, and man-

kind, usually, quite another. Now my advice on this point is, never think of planting anything that is not worthy of the best care.—But the question may be asked, when is one to know what kinds are worth cultivating until they have been tried? Of course it is only by experience that we can determine the value of the different varieties. Still it is not always necessary for every man to make separate experiments for the purpose of deciding upon the value of particular kinds of fruits; for if it were so, then we should make very slow progress.

ADVANTAGE OF BOOKS.

A man who is about to engage in fruit culture should read a few of the best works to be found on the subject. This will give him a general idea of the business. He should then make up his mind as to what one or more families of plants he will cultivate.—But before this decision is made, it is well to know whether his soil or location is well adapted to the cultivation of these kinds; for it must not be forgotten that one section of the country, without any regard to soil, is often far better suited to certain kinds of fruit than another. In the older States a man need not go astray, for the experience of our older horticulturists is a pretty safe guide. For instance, if a young man has made up his mind to make grapes a specialty, he should then visit some of the more successful grape regions of the country and examine the soil, location, varieties and mode of culture, and then judge for himself whether his own location or soil is a favorable one or otherwise. If he be desirous of growing the different kinds of small fruit, let him adopt the same plan, visiting the nearest fruit growers, and learn from them which are the most profitable varieties. Supposing a man is located in West or South Jersey, and wants to grow raspberries and blackberries, would it be advisable for him to visit the great raspberry fields on the Hudson for information in regard to varieties? No; not by any means; for the very best in that section are worthless a few miles further south. But should the man visit the extensive plantations of William Parry, Collins, and other fruit growers of West and South Jersey, he could acquire in one hour as much practical knowledge as he would be likely to obtain in ten years of personal experience. These men have demonstrated the fact that particular varieties are adapted to their location, and that others are not. The same information can be obtained from men of experience in all sections of the country; and young men who fail to make use of information which is so readily obtained scarcely deserve to be successful.

UNRELIABLE VARIETIES.

There may be men who will recommend certain varieties, because they have plants of the same to dispose of. Therefore, I would say, go and see the plants when in fruit, and satisfy yourself as to their value before purchasing. A man had better travel a thousand miles, if by doing so he can decide as to the value of a fruit which he desires to cultivate extensively.

There is one other point which is worthy of some consideration, and it is, whether it is best to cultivate several varieties or only the best one. It is an old adage that if a man has several irons in the fire some of them are likely to burn. But if we have only one iron, and that burns, our occupation is gone. I believe it better to make a specialty of certain kinds; but not to trust all upon one. If we grow nothing but pears, and a late spring frost kills the flowers, our income, for that season, is gone; but the expense of cultivating is the same, whether the trees produce or not. It is just the same with other kinds of fruit. But it is seldom they all fail in any one season. I have known strawberries to be entirely destroyed, while raspberries and blackberries were uninjured. This season blackberries are exceedingly scarce; but strawberries were abundant. Consequently, the man who has both is on the safe side.

A SUCCESSION OF FRUIT.

In cultivating the small fruits, I believe it to be the best policy to make the division about equal between the strawberry, raspberry and blackberry as a general rule. Of course there will be exceptions; for if a man has a suitable soil, he will not neglect the currant, gooseberry, cranberry or grape.

Early strawberries are sometimes killed by late spring frosts. Therefore, one should have at least one early and one late variety. When the strawberry is past, the black raspberry should succeed it. This is always a safe crop; and, as a general thing, pays a handsome profit. There are also early and late varieties of this berry. But the grower must decide for himself which one is most desirable, for markets differ. In some instances they are in

greater demand at one time than another.—The red raspberry and blackberry follow close upon the former, thus giving a succession for nearly three months. Now, the same boxes, baskets and crates used for one of these berries may be used for all, and, by growing several kinds, we are enabled to keep the capital invested in the marketing apparatus constantly employed for several months instead of a few days, as would be the case if only one kind were cultivated.

ADVANTAGE OF CULTIVATING A SUCCESSION.

Besides the above named advantages, a less number of hands are necessary to take care of a certain number of acres when occupied with several varieties than when one is grown. It will require the same number of days' work in the season, but distributed over a longer period of time. A man may be able to obtain ten hands at one time, but not twenty; and it is well for a fruit grower never to place his property at the pleasure or mercy of hired help. I have always observed that the man who so arranged his plans that he was sure of a steady income, was far more likely to get rich than the one who was on the lookout for larger sums at one time; and this is the principal reason why I advise beginners in fruit culture to grow a few of the best-known varieties and cultivate them well.—*A. S. Fuller, in Whitlock's Agricultural Recorder.*

Fruit and Oysters.

"Fruit should be eaten alive, like oysters. There is an edge to the taste of a fresh opened oyster, which comes, I suppose, from the surprise he feels at being suddenly scooped out of his shell. In a few minutes this gives place to a feeling of alarm; and then, in an hour or two, to one of despair. When he is laid out with his brethren in a dish, the whole brood is hopeless and sad. They may still taste of life, but it is of life disappointed. But the fresh opened oyster has no time to grow feverish or melancholy. He is caught in a state of serene unconsciousness of sorrow. He has a sound mind in a sound body, and is therefore wholesome and nice. Allow him to reflect before his spirit is gone. But the quick operation of detaching him from his shell sends a spasm through his being, which startles all the latent excellence he may possess into sudden and unique perfection. If eaten at this crisis of his healthful powers he conveys all the gratification which an oyster is capable of giving to the superior animal man.

So analagously, I believe, is it in eating fruit. It must be eaten alive, before the reaction begins to set in from its severance from the life-carrying stem. While a plum, for example, hangs upon its stalk, it is in some kind of magnetic correspondence with all the powers of nature—it shares the life of the earth and sky; it has sunshine in its veins and dew in its cells. Cut it off, and in time it dies, corrupt, unwholesome; and every moment in its progress from life to death is marked by a decadence of that essence which makes fruit delicious. Therefore, supposing that you pluck it ripe, the sooner that a plum is eaten the better for you. This, of course, applies most to tender, thin skinned fruit. A firm apple dies slowly. A nut holds out long against the debasing influence of separation from its source of life. But plums, figs, peaches, apricots and strawberries begin to suffer directly after they are gathered. This is the case even with pineapples, which are susceptible of bruises, but they contain such an apparent surplusage of flavor, that the first stages of their decay are not perceived except by a cunning palate."

We find the above credited to "Ex.," but it is evidently from higher authority.—*Ed. Am. Farmer.*

TIME TO CUT TIMBER.—A correspondent of the *Southern Cultivator*, in communicating the following experiments, remarks that the best time to cut timber is when in full leaf—July and August—and that the knowledge would have been worth thousands of dollars to him had he possessed it years ago:

Lot No. 1 was cut in July, 1860—house logs to put up cabins; red oak. They were put up, but not covered; been exposed the whole time; still sound.

No. 2 was square timber for gin houses, of red oak, post oak and over cup, was gotten out in December, 1860; piled and covered with plank till 1863; exposed since that time; sound on the outside about two inches; perfectly rotten in the heart; red oak the worst rotted.

No. 3 was of same kind of timber; subject to more exposure; gotten out in June, 1861; much sounder than No. 2; green timber in July, 1861; subject to same exposure as No. 2; still quite sound.

Fruits to Supply a Family.

The question is often asked, "what shall I plant in order to obtain a full supply of fresh fruit for a family the year round?" It is difficult to give a precise list, as in some seasons the crop may be many times greater than in others; and again, some will bear abundantly and others fail in the same season. The following, however, will serve as an approximation:

The earliest fruits, about the first of summer, will be strawberries. A selection of the most productive sorts, well cultivated, with the runners kept cut off, will afford about one quart a day from each square rod for a month. Three or four square rods will, therefore, give an abundant supply for a family. Four or fixe hundred plants will be sufficient for this extent of ground. These will be followed by the earliest cherries, and by currants, raspberries, and gooseberries. Two dozen bushes of each of the four best sorts of currants, the same number of raspberries, and two dozen of Houghton's gooseberries, will, if cultivated, furnish an abundant supply. One dozen cherry trees will be enough. Two or three dozen bushes of the blackberry will supply a quart or two a day for some weeks towards the close of summer. Apricots, early apples, and early pears, and a few of the earliest plums, will commence the season of abundance which, with the later varieties of these fruits, will last till near winter. Winter apples and pears, and all the good-keeping varieties of the grape, will continue the supply until spring. Long-keeping apples, such as the Northern Spy, Roxbury Russet, and other sorts, if placed in a good, cool fruit room or cellar, will continue until the commencement of the new supply of strawberries.

To obtain this supply there may be half a dozen apricot trees, a dozen or two of plums, two dozen of summer and autumn pears, and as many more of winter varieties, the same number of summer and autumn apples, and from fifty to one hundred trees of winter apples. A dozen or more of peach trees and the same number of well managed grape vines will contribute materially to the variety and excellence of the supply. The fourth of an acre of well cultivated vineyard will be sufficient to furnish several pounds of fresh grapes daily through the autumn and winter months.

The extent of ground required will be about ten or twelve square rods for the different summer fruits, and an acre and a half or two acres more for all the others except the winter apples. A plantation of dwarf apples and dwarf pears will enable the owner to reduce considerably this extent of ground.—*American Fruit Culturist.*

Fall Pruning Grapes.

Most grape growers delay pruning their vines till spring. This we think a bad practice. If they wish to make cuttings of the surplus canes, they are not near so good as if taken off in the fall and carefully burned, or put away till spring. The wood is frequently so much injured by the water, as not to grow in the spring.

But the wood left for producing fruit is better for being pruned in the fall. It is much more easily protected, as it can readily be laid down and covered slightly with earth, and if we have a severe winter it is safe. Indeed we think it would pay to protect vines in this way in our mildest winters.

It is not for the protection of the vine alone, however, that we recommend fall pruning. It is to strengthen the buds and canes which are left. Many think that it will have no such effect. But if they will prune two vines in the same manner—one in the fall as soon as the leaves are destroyed by frost, the other the following spring—they will find that fall pruned vines will be much more vigorous and productive the ensuing summer. The vine is not dead in winter. Its roots continue to absorb food, though, of course, in much less quantity than in summer. The nutriment thus absorbed is distributed throughout the vine. All the buds are more or less benefitted, but as the buds remotest from the roots always receive the principal flow of sap, they are most benefitted. Now by pruning in the fall, all this is saved in the buds and cane we have left for bearing. It is upon this principle that we always prune in fall or winter for wood. By summer pruning we check wood growth, as all know.

The buds that are left will become strengthened by the sap they have received during the winter. They will push early and vigorously in the spring; and if well cared for, will delight the eyes of the beholders with large clusters of luscious fruit that they produce.—*Rural World.*

Sheep kept with cows are not so apt to be killed by dogs as when alone. The cows fight for them.

For the "American Farmer."

Seven Propositions with Regard to the Economical Use of Manures.

The usual influence of bone phosphate of lime in promoting the fertility of soils has been apparent in England twenty years after the application of bones as a manure.

II. All soils are not alike. Some naturally supply all the inorganic or mineral elements of soil plant food (such as phosphate and sulphate of lime, potash, &c.) either by the disintegration of their own elements or those of remote rocks or soils which annually reach them (through springs that permeate their substratum) especially when evaporation is promoted at their surface by "soil stirring."

III. The most ignorant farmer may easily determine the relative value or deficiency of any element of his land (that is usually supplied in artificial manures) and much more certainly than any other person can who depends on the most accurate *quantitative* analysis of its elements, for reasons that are self-evident, if the second proposition is admitted. The directions for this experiment are given on page 249, in the American Farmer for February, 1868.

IV. Wheat has been cultivated on the same field (without rotation of crops) during twelve years in England, and the crop has gradually increased from 16 to 36 bushels per acre—the soil has also appeared to improve, although no manure was applied. This was demonstrated more than one hundred years since by Jethro Tull, and more recently (since 1850) by Rev. Mr. Smith, as recorded in the Journal of the Royal Agricultural Society of England. See also American Farmer, page 73.

V. The old mode of "weathering soils" is too expensive in time and labor—in this country while time or money is worth 10 per cent. and labor is 50 per cent. above par, and then unreliable. On this principle our most successful agriculturists not only use all the income of some land to purchase manure, but also mortgage the land, in order to add thereto in fertilizers.

VI. Peculiarities in the season—soil and cultivation apart from the fly or other more minute insects and spores (such as rust)—the prevalence of "blue grass" and defects in drainage (especially where drainage is not indicated once in seven years) may—and *very frequently do*—entirelg nullify the best fertilizers. Under the influence of any one of these accidents, the plants may not be able to use even the *natural* resources of the soil—consequently those fertilizers that are permanent in their influence and last for twenty years are good investments, although they fail to declare a dividend the first year. The sale of fancy "stocks" is promoted sometimes, as the evanescent fertilizer, by the appropriation of part of the capital in order to double the dividend during the first year. The general principles upon which manures are recommended are the same that govern the most learned and experienced professors in recommending medicines. For instance, all of the best standard medical works recommend the red Peruvian bark *in substance* and the solid opium in preference to the pure quinine and morphia. The former *natural* combinations succeed, where the latter fail entirely. So it is that every healthy stomach prefers wine to alcohol, and meat rather than pure gelatin. The *multitude* who prefer alcohol to wine are not more permanent nor reliable than those who denounce a fertilizer of known value, and also every person who asserts and *proves* its *intrinsic* excellence by actual demonstration. Thus a natural phosphatic guano may be recommended and preferred for certain crops that mature in nine weeks, while a more concentrated fertilizer may be more economical for other crops, such as wheat, that requires nine months, although both are estimated in proportion to solubility with reference to the same element (phosphate of lime.) The infinite division of the particles in the one case being a quasi solubility *superior* in its practical relations to any artificial solubility in concentrated acids, especially for plants of *rapid* growth.

VII. Composts collected *at this season* on the margin of the fields appropriated to spring crops and made of alternate layers of surface soil that is most productive in weeds—barn-yard manure and a mixture of good phosphatic guano (that is not compost or fossilized and does not contain *carbonate* of lime) and a little plaster—will be found the most economical fertilizer—and if 300 or 400 pounds of the guano and 50 pounds of gypsum are appropriated to each ton of manure and subsequently applied in that proportion to an acre, it will excel most if not all of the $50 fertilizers. Unless a ton of barn-yard manure is worth five dollars—the time, labor and expense necessarily attendant on its application

at a season when time is precious and hauling laborious—exceed its value, and our most expensive fertilizers are pronounced cheap in comparison with barn-yard manure gratuitously bestowed and delivered on the farm. This is the verdict of one of the most sage and conservative agriculturists, endorsed by another, proverbial for economy and success in farming—and if so, the compost suggested is the most economical appropriation of barn-yard manure—as each ton thus becomes worth more than five dollars, and the guano is *in this compound* much more valuable than any superphosphate. The fact is, that no superphosphate is ever assimilated *as such* by any plans, but it must be reduced by mixture with bases in the soil, to the condition of a quasi superphosphate in the same condition in which the phosphate of lime naturally exists, in the guano described above, which yields more than 30 per cent. of this quasi superphosphate, while our best superphosphates rarely yield more than 8 per cent. This proposition is abundantly illustrated in an article headed "Nascent Manures," first published in the American Farmer for March, 1855, and subsequently copied into the Annual of Scientific Discovery. The author has not added to it the results of some further experience, and will suggest, at some future time, *the* most economical application of lime upon the principles therein exhibited.

DAVID STEWART, M. D.

Port Penn, Del., Sept. 26, 1868.

THE STRAWBERRY MARKET.—P. C. Reynolds, a practical fruit grower at Rochester, gives it as his opinion, in the Rural New Yorker, that strawberry. growing, as now generally practiced in the State of New York, has ceased to be profitable. Much has been sold at eight cents per quart, which he regards as less profitable than raising potatoes, after deducting the expense of raising, picking, marketing, &c. To make Wilson pay, he says the culture must give at least 200 bushels per acre; which, at eight cents per quart, would give $500—"as small a sum as would pay a fair profit over the cost of setting, cultivating two years, and deducting rent." He says the Triomphe de Gand has sold at Rochester for about fifteen cents, and double this price in New York. We may add that J. Knox of Pittsburg gets more than triple this price, and sells freely—so much for doing everything in the very best manner.—*Co. Gent.*

Grasses for the South.

PENDLETON, S. C., Sept. 26th, 1868.

Editors of American Farmer:

Herewith please find two numbers of the "*Farmer and Planter*," (June and July, 1858, Vol. IX.) containing "*An Essay on Grasses*," by C. W. Howard, of Kingston, Ga. You have no doubt many enquiries on the subject of grasses adapted to the South, their culture, &c. Mr. Howard is a practical agriculturist, and has made more experiments in the culture of grasses in the South, their adaptability, &c., than has probably any other gentleman who has published the results; and many of your readers will, no doubt, be pleased to see the Essay copied into the "American Farmer."

Respectfully, S.

We avail ourselves with pleasure of the suggestion, and the means of complying with it, offered by our friend George Seaborn, Esq., for many years editor, of that excellent publication, the "Farmer and Planter," of South Carolina.—*Ed. Am. Farmer.*

AN ESSAY ON GRASSES.

For the Southern Central Agricultural Society.

BY C. W. HOWARD, KINGSTON, GA.

A prominent English farmer, when asked by an American farmer, "Why there was so little root culture in England, as compared with the continent?" replied, "That the English could not afford it—that labor was so high and their lands so valuable, that a prudent economy required them to adopt a system of farming which would use the least labor with a reference to the constant improvement of the land." Now, land in England is worth an average of $500 per acre, and labor is worth from 30 to 50 cents per diem.

While more labor is used on the European continent in agriculture than in England, still the amount there employed on a given number of acres, is, to an American, astonishingly small. Where labor is needed to perfect an agricultural operation, it is employed without stint. But care is taken that a small portion of the land cultivated requires this labor.—Flemish agriculture is considered to be the most painstaking and perfect in Europe. Yet the regular labor on a Flemish farm of 100 acres is an average of two laborers. At times, as in hay or grain harvest, an extra force is required. This average would apply to the best farming countries of Europe.

If this system of farming be right where land is dear and labor is cheap, then our system, where land is cheap and labor is high, must be radically wrong, as we cultivate chiefly those crops (cotton and corn) which require the use of the least land with the most labor.

It is possible, perhaps, in some degree to account for the agricultural peculiarity which obtains among us. The Southern colonies were planted with reference to the production of particular articles of export. Our own State was founded with a view to the supply of the Northern country with silk. The colony exhibited the anomalous spectacle for many years of a company of people exporting silk and importing almost every article of food. The agricultural tendency created at this early period, has not been wholly arrested. We, at this time, export cotton and import meat, cheese, butter, &c., from the North and West. We are now a thriving people, but it is in spite rather than in consequence of our mode of agriculture. An incorporation into our own of the Northern and European system of agriculture, modified with reference to climate and our leading and most valuable staple, cotton, would cause the Southern States to thrive beyond a precedent.

"Cotton is King." He would be worse than a Red Republican, who should attempt to dethrone his sovereign. On the contrary, it is our part to surround the throne with additional munitions of defence, and by all means in our power to render permanent and increasingly to extend the most benificent rule which the world has known.

Dropping the figure, in order to accomplish this result, we must not exhaust, but improve the soil which produces cotton. If we raised our own horses, mules, beef, pork, mutton, wool, cheese and butter, we could so manure our lands that we could raise the same amount of cotton from half the quantity of land now employed for that purpose. The same results could thus be obtained with vastly less labor. We should have the satisfaction of reflecting that we would leave to our children not denuded and gullied hill sides, but lands which our industry has improved. But to do this, we must incorporate one feature of Northern and European agriculture into our own—that feature by which they improve their lands, appreciate their values, and at the same time receive annual and remunerative returns with the use of a small amount of labor—that feature is the extensive cultivation of the artificial grasses.

It is said, however, that the artificial grasses do not succeed at the South. Neither would cotton, corn, or wheat succeed if put in poor ground and left without after-culture. The valuable natural grasses of the country have, to a great extent, disappeared. Old settlers tell us that they recollect the time when the rich lands of Greene, Morgan and other counties of the State, were covered with luxuriant growth of pea vine and winter grasses.—These grasses, natural to the soil, have been exterminated by the plough. The soil on which they grew has been exhausted. The salts left in woodland by the Indian fires and which are indispensable in grass culture have been taken up and appropriated by a second growth of timber. And now, if we wish to introduce new and artificial grasses, or if we had the seeds of those which have disappeared and desired to renew them, we must replace the salts which have been taken away in the course of years.

Civilized life is an artificial life. The domestic animals necessary to it are, in a sense, artificial creatures and require artificial food. the most necessary item of this food is cultivated grass, which will not grow without artificial aid. It must be properly put into proper ground and properly treated—otherwise an attempt to cultivate it will be attended with failure.

The opinion that the artificial grasses do not succeed with us is greatly dependent upon an improper comparison made between the North and the South. Persons going from closely grazed and parched pastures at the South, in August, to green pastures at the North at the same time, determine hastily by comparison that grass culture with us is useless. But suppose the same persons went from a well laid and green blue grass or clover pasture at the South in March to one of the same kind at the North at the same season, and found the latter stiff frozen or covered with snow, might they not as well say that grass culture is useless at the North? It would be equally as reasonable as in the former case.

Both sections, North and South, are well adapted to certain artificial grasses. The North has the advantage in midsummer. We have the advantage in autumn, winter and

spring. The advantage is greatly on our side. We can use our grasses for a greater portion of the year and with much greater economy than is possible at the North. We save a large portion of the expense of mowing, barns, and winter attention to stock.—The cost of one Pennsylvania stone barn, would lay down a large Southern plantation to grass, upon which cattle, sheep and horses may graze during the winter, without the trouble and cost of making it into hay.

The difference between the North and South, as to the artificial grasses, consists, then, not so much in the comparative adaption of earth to their growth, as in the use which is to be made of them. At the North, their chief value is for hay. At the South for winter pasture. Our ability to graze our pastures during winter and spring is a very material point. As soon as our grain is cut and the stubble fields are open, the crab grass springs. Our artificial pastures may then be closed until winter. That invaluable product, the crab grass, enables our stock to luxuriate on new grass, while Northern cattle are eating the old grass of the spring.

Nothing is said of the Bermuda grass, as it is a vexed question as to whether this grass, otherwise very valuable, can be controlled.—It may not be amiss to suggest in this connection, the plan of paring and burning, (which is common in England) as a means of destroying Bermuda grass and at the same time of enriching the soil. The details of the process can be found in any of the English agricultural works. If this process will answer the end without too great expense, the objection to Bermuda grass as a superior pasture would be removed and it would be a useful auxiliary to the artificial grasses.

The practical question arises, "are there any of the artificial grasses which we can cultivate, which will give us a good winter pasture?"—There certainly are grasses which will answer this end, if sowed in sufficiently rich land and properly treated afterwards. This remark is true of the whole State unless it be the actually drifting sand of the sea board. Land is not sufficiently rich for the artificial grasses, which will not bring twenty-five to thirty bushels of corn, or 10 to 15 bushels of wheat to the acre. The remark is made, not of woodland, but of land which has been previously cultivated.

The soil can be made sufficiently rich without justly charging the expense of manure to the grass sowed upon it. Let the ground be well manured, say for wheat, and grass seed may be sown with the wheat. The increased wheat crop will pay for the manuring, and the land be left in capital condition for grass. No stock should be allowed to go on the field the first summer or fall after the wheat is cut. Land so manured will usually bring a heavy crop of crab grass after the wheat is cut, which may be made into hay. Thus the lay-down of the field in artificial grass costs only the purchase and labor of sowing the grass seeds.

It is a material error of the persons at the South who have attempted grass culture, that they do not distinguish between the growth of a crop of grain and a crop of perennial grass. The former being an annual, grows rapidly and smothers weeds. The latter being perennial, matures slowly and lets in and is apparently smothered by the weeds. This occurs the first year, and to an unpracticed eye the field thus sown would seem to be an utter failure. A really good stand of the narrow leaved grasses wears this appearance. In consequence of it many persons have ploughed up their ground in despair and have hastily concluded that the grasses will not grow with them. But this is a great error.—The first shoots of the blue grass, for instance, are as fine as a fine needle and continue so during the first year. But the next year after it has shed its seeds, it spreads with almost magical rapidity. The weeds which cover the ground during the first year's growth of the grass are of service, shading the ground in summer and protecting the young grass during the first winter. The next season being for the most part annuals and requiring the earth to be stirred before their seeds will germinate, they measurably disappear and leave the soil to be occupied by the grass.

In the preceding remarks, it is supposed that grass seeds are sown in land already cleared and made artificially rich. The most valuable use of the artificial grasses at the South is for woodland pasture. A certain proportion of woodland must be reserved on every plantation. Under the present system this body of land is almost totally useless, save for timber and fuel. The amount of money invested in land of this discription in this State must be counted by the millions.—This comparatively dead capital may be made

to yield a heavy interest annually, by the use of the artificial grasses. Let the rail timber sufficient to fence it be taken from the woodland of a plantation—let the rest of the trees be slightly thinned, taking care to leave the mast-bearing trees, as chestnut, whiteoak, &c. —let the under wood be grubbed and this with the tree laps, be burned in a small heap, so that the ground may receive a general dressing of ashes—let the ground be stirred with a plough, or a harrow which is the better of the two—let grass be sown before a rain or during a drizzle or on the snow and left without covering—let no stock be suffered to go on the ground for a year or until the grass has gone to seed. Afterwards this woodland pasture will become one of the most valuable parts of the plantation. Every acre of this woodland is richly worth fifty dollars. In no legitimate form of business can fifty dollars be made to yield a better interest.—The remarks which were made as to the amount of fertility, either natural or artificial as indispensable to successful grass culture on cleared lands do not hold good in regard to woodland. There is scarcely any woodland so poor that it will not produce good grass, if properly treated. Pine land should be accepted, as no artificial grass will grow under the shade of the pine tree. Ashes from the fires in preparing the ground will cause the grass seeds to germinate quickly and the roots of the plant to take firm hold of the ground. Afterwards as the land, properly pastured, continues constantly to improve, the grass also improves. Woodland not worth clearing for corn, may be converted into excellent pasture. The only manure necessary is the ashes carefully spread upon the surface. The most broken land answers equally well for woods pasture as that which is level. In fact, so far as summer pasture is concerned, the broken land is the better of the two, as it receives the direct rays of the sun during a shorter period of the day.

The farmer who is well provided with winter woodland pastures need provide no protection for his stock, except that portion of it which is necessarily kept in the yards for constant use. Occasionally thickets left upon the South side of hills, will give the stock an ample covering. Cattle in a muddy farm yard, without covering over them, are pitiable objects. In the woods they can always provide for themselves. Hogs in these pastures thrive and fatten, as they have not only the grass, but a winter's supply of acorns—a supply in thinned woods which so rarely fails, as to make failure an exception. The sheep exhibited by me at this fair, are Merinos, and they have had neither shelter nor food except that which they have found in their pasture. Their only cost has been their salt and the interest on the land pastured by them. Grain of any kind has never been fed to them, yet they are always fat and even at mid-winter, and their wool will compare in fineness and quantity with the best Northern flocks from which the stock was originally selected.—Mules and colts will thrive without other cover or food than that which they find in a good winter woodland pasture. With a proper supply of such pastures the farmer may have it in his power to render his cotton and grain lands indefinitely rich.

We have heard so much of the "blue grass pastures of Kentucky," that persons are inclined to attach some mysterious fertility to the soil of Kentucky, by which this grass is spontaneously produced. The blue grass is not a native of Kentucky. Its seeds were originally sown by man. It has become natural to the soil, by its light seeds being scattered in every direction by cattle, the winds and birds. The same result will occur in time wherever it it extensively sown. It is now occuring on this farm. It is taking possession of a meadow where it was not sown and where it was not wanted, its seeds having been brought by freshets more than a mile from the lands of a neighbor. Everywhere through the upland woods on this farm, bunches of blue Grass, herds grass and clover can be found. This result has followed in about ten years. In perhaps ten years more, if the woodland be thinned out, grubbed and ploughed, the blue grass will probably appear as in Kentucky, of course, varying in the richness of the pasture with the richness of the soil.

The use of the artificial grasses is the basis of a mixed husbandry, which has accomplished for the farmer such great results elsewhere.—It will be an era in our history, when it is fairly introduced into Georgia. Not having large cities, the income of the planter, prior to our railroad facilities, was derived almost exclusively from his cotton. But now while we improve our lands by the manure which this system affords and thereby increases our

cotton crop, all other farm products have become saleable. We have the sea coast on one hand. Charlston and Savannah are now exporting wheat and flour to Europe. Next year we shall have direct railroad communications with the Northern cities via Knoxville, through which we can send beef, mutton, pork and wool at a less expense that they are now brought to them from the West. The superior mildness of our winters gives us a great advantage over the West and Northwest in stock ra'sing. This is not the general opinion, but an opinion is not necessarily true because it is general. Let the Southern mind be directed to this subject as it has recently been directed to others, and it will be found that we have great facilities for raising stock.

It was long supposed that we could not raise winter fruits, yet our winter apples and pears quite equal the Northern.* It was long supposed that we could not make wine, yet a fair experiment has proved this to be a wine growing country. It was supposed that we could not make malt liquors, yet excellent beer is now made in our State. It was supposed that the wool of the Saxon and Merino sheep would deteriorate in our warm climate, yet at the World's Fair in London, Southern wool was the finest on exhibition.† A fair and full trial will show that we can raise good winter grasses, and with them our facilities for raising economically and successfully the various kinds of domestic animals, cannot elsewhere be exceeded.

In connection with these remarks, which are merely suggestive, and which might be greatly extended, specimens of seeds of 18 different artificial grasses grown by the writer, are submitted to the committee. These seeds have all been matured on this farm, except the Sainfoin. The comments made upon them are the result of twenty years' observation of the culture of the grassess and after an experience of residence in Baldwin and Cass counties—two regions of the State materially differing from each other, both in soil and climate.

No. 1. *Red clover.*—This is so well known as to require no extended description of its general value and habits. It will grow in any part of the State if the soil be made sufficiently rich, and if not too heavily grazed during the heat of summer. The chief difficulty in its culture, is obtaining a good stand. This difficulty most generally arises from the poverty of the ground in which it is sown.—The young plants not having sufficient nutriment for an immediate and vigorous growth are smothered by crab grass or weeds natural to the soil. If the time of sowing be selected, which will enable the young plants to strike their tap roots into the soil, before the weeds begin to grow, afterwards they defy all opposition. The best season for sowing clover is the time of sowing turnips or very early wheat. When once fairly established, the value of red clover can hardly be exaggerated. Ashes, leached or unleached, are the best manure for it where lime is too expensive. Gypsum greatly stimulates its growth, using only one bushel to the acre.—It is now settled that success in the growth of clover is not a question of climate, but rather of soil. The splendid clover fields near New Orleans are proof of this. The lands of Southwestern Georgia, probably could not be surpassed in their yield of clover. I have seen it near Savannah and in Baldwin county as fine as I have ever seen it in New or old England. Everything depends on the preparation of the soil, time of sowing and subsequent treatment. At the North, the danger is that it will be frozen out—at the South, that it will be burned out. The one danger is no greater than the other. Proper precaution will guard against both.

Red clover has an especial value to us at the South, where bacon is so much used in feeding our negroes. We have a general idea that clover is a great reliance in Kentucky in raising those large droves of hogs which are annually brought into this State. But the full value of this plant for this purpose is not appreciated. It may not be amiss to quote two agricultural authorities of undoubted veracity, showing the number of hogs which may be raised upon an acre of clover. Dr. Deane, the father of improved farming in New England, says: "I suppose that one acre of rich land in clover, will support twenty or

*The Southern seedling apples, such as Carter, Nickajack, Camak's Sweet, Equinetely, &c, &c, are admitted even by some of the best Northern Pomologists, to be *superior* to theirs; and a fair trial will establish the same superiority for our pears.—*Eds. South. Cult.*

†Since writing this Essay, it has been proved by a lady of Warren county, that an excellent article of merchantable cheese can be made even in the exhausted portions of the State. The cheese exhibited by her at the Fair was equal to the best Northern article.

more swine, large and small together, through the summer and bring them well forward in their growth."

Arthur Young, the father of improved farming in Old England, states that "he pastured sixty-four swine of various sizes on two acres of clover ground." If the half of this result can be obtained in Georgia, a very few acres of clover would raise sufficient pork for a large plantation. The large Mackay boar, weighing 500 pounds, exhibited by me at this Fair, has been fed entirely, during the spring and summer, on clover and other grasses, having eaten no grain, of any kind except that which he found when the stubble fields were first opened. With us, clover bears summer pasturing better than the spear grasses, observing the precaution not to begin to pasture it until it is in blossom, and never to pasture it so closely that the roots should be exposed to the summer's sun. I have now 20 acres of clover which was mowed in the spring, which has not been grazed since, and which is now two feet high, and upon which stock will not be turned until after Christmas. From that time until spring it will support abundantly one cow or five sheep to the acre.

(Concluded next month.)

VARIETIES OF THE STRAWBERRY.—A writer in the Horticulturist is perplexed with sixty bearing varieties on his grounds, claimed by the originators as particularly excellent. He hopes that the next meeting of the American Pomological Society will weed out the "suckers." There will be no trouble on this point; these worthless varieties will weed themselves out with a good deal of expedition. Let "E." make a memorandum this year of all the highly lauded and unproved sorts, and keep it five years, and he will find nearly all forgotton, and very few in cultivation. The Society need not trouble itself.—*Country Gent.*

For the hop aphis a correspondent of the *Country Gentleman* recommends a dusting of plaster of Paris as an efficient remedy, and at the same time an application that is beneficial to the soil.

Mr. Riley, State Entomologist of Missouri, thinks a heavy mulching of the soil would prevent the Colorado potato beetle from coming out of the ground in the spring.

From the American Entomologist.

Hogs vs. Bugs.

For some time back the best and most scientific fruit growers in the West have been agreed, that practically there are but two methods universally available for fighting the plum curculio; mamely: either 1st, by jarring the trees continually, or 2d, by allowing hogs the run of the orchard all through the summer months. The first method produces an immediate effect, because the "Little Turk" is thus arrested at once in his mischievous career, and prevented from stinging any more fruit. The second method is prospective in its effects, and operates chiefly through the hogs picking up all the wormy fruit as fast as it falls, and thus preventing the larva of the curculio from going underground, and generating a new brood of curculio to sting the fruit at a subsequent period.

We propose in the following paragraphs, without at all undervaluing the first method, to demonstrate by plain, hard, practical facts, that the second of these two methods produces most gratifying results when systematically carried out for a series of years, even without any regular jarring of the trees.—The only exception to be made is in the case of the cherry, which, unlike all other stone fruit, does not fall prematurely to the ground when bored up by the larva of the curculio. Hence, so far as regards the cherry, we must depend entirely upon the jarring process to subdue this insect.

But the plum curculio and its allies are not the only insects that we can successfully attack through the instrumentality of the hog; neither is stone fruit the only crop that can be protected in this manner. For the last fifteen years or so, pip fruit, namely: apples, pears, and quinces, have been annually more or less deteriorated by the apple worm or larva of the codling moth boring into their cores, and filling their flesh with its loathsome excrement. Unlike all the snout beetles that infest stone fruit in America, this is an imported insect, which was originally, about the beginning of the present century, introduced from Europe into the Eastern States, whence it has gradually spread Westward into the Valley of the Mississippi. The facts which we shall presently quote prove that hogs are death upon this insect, as well as upon the plum curculio, picking up the wormy apples as fast as they fall, and greedily devouring them

without any squeamish misgivings as to the wholesomeness of their living inhabitants.—It is not at all improbable, either that hogs may pick up and devour the larva of the codling moth after it has left the fallen fruit, and while it is on its travels for the trunk of the apple tree. For instead of going underground, like the larva of the plum curculio, this larva spins a cocoon above ground, and usually in the chinks of the bark of the tree upon which the apple that nourished it grew. Hence, as the apple worm is of some considerable size, some specimens being almost an inch long, a hungry hog would scarcely consider it "too small business" to pick up and devour as many as could be found traveling along the surface of the earth.

HOGS VS. CURCULIOS.

[Extract from a letter by "RURAL," dated June 3, 1868, and published in the Chicago Tribune.]

At Duquoin the Messrs. Winter Brothers have a peach orchard of nearly eighty acres. For the past five years they have allowed a large drove of hogs to pasture in this orchard, that pick up all the fallen fruit. The second year a small share of the fruit was stung, but for the past three years there has been no loss on this account. It would appear that the time has been sufficiently extended to give great promise of success. In the garden, where the hogs are excluded, there are a few peach trees, but these are badly stung.

Mr. A. Mitchell placed hogs in his peach orchard last year, and his crop is but little affected. All other peach crops about Duquoin, and all that I saw at Centralia, have the fruit nearly all ruined by the insect. I did not see a single plum on any of the trees in this part of the State. Most certainly this fact is not only worth knowing, but to be acted upon without delay. We must bear in mind that, when hogs run in a small enclosure containing trees, they are very liable to kill them by rooting and tramping the ground; but this is not the case in large orchards where they live on the imperfect fruit.

David E. Brown, one of the largest fruit growers near Alton, South Illinois, has for about five years kept both hogs, and, at times, sheep, in his apple and peach orchards. His fruit is not infested by insects nearly as much as that of his neighbors, although he employs no other precaution whatever to guard against the depredations of fruit-boring insects. His peach trees are also free from borers, though he takes no pains to worm his trees. His hogs keep in good condition on the fallen fruit. These facts were confirmed both by Dr. E. S. Hull and by Mr. B. L. Kingsbury, of Alton.

Mr. Caughlin, in the Report of the Alton Horticultural Society for July 2, 1868, "gave favorable experience in regard to hogs eating fallen peaches. His peaches were very free from worms this year. He attributes this to the fact, that the hogs in his orchard destroyed so many of the larva last year."

HOGS VS. APPLE WORMS.

W. C. Flagg, of Moro, near Alton, has for five years tried the plan of allowing hogs the range of his apple orchard, and finds it very beneficial by checking the depredations of fruit boring insects.

An apple grower in Southeast Michigan, whose name and residence we omitted to note down, has for many years back allowed hogs the range of his apple orchard. His apples have been but very little infested by the apple worm, even in years when those of his neighbors where swarming with this insect. In 1867, the worst year for the Apple worm that was ever known in this country, he had but very few; while in 1866, a year in which this insect was not generally abundant, he had more of them.

Note by Ed. of Am. Farm.—We have given only a portion of the proofs brought together by the *Entomologist* in support of his proposition.

MAMMOTH CLUSTER RASPBERRY.—H. H. Doolittle, the disseminator of the Doolittle raspberry, says he twice visited Purdy & Johnston's grounds, and saw the Mammoth Cluster in fruit, and says "the mass of berries of uniform large size were compacted so closely in clusters, and the clusters shaped like a goose egg, as to give the appearance of solid fruit of that size. The bushes where absolutely crowded to the ground with the load of fruit." Honorable testimony from a rival cultivator—but he thinks the flavor not quite so good as some others.—*Country Gent.*

English farmers believe that "hilling up" potatoes reduces their yield one-fourth. They do not ripen as well.

The Hudson Hay Cutting and Baling Co.

BROWN'S PATENT, NEWARK, N. J.

By invitation of the Superintendent, we visited the works of this company at Newark, and were so much impressed with the great value of the Brown patents under which it works, not only to the farmer, but to all directly or indirectly interested in the forage crop of the country, that we deem it our duty to lay before our readers an ample description of the invention and its evident merits.

The apparatus for cutting, crushing and winnowing the hay, is on the second floor of the building and occupies about the space of a compact threshing machine; here the hay is first cut by a series of rotary knives to any desired length; it falls thence into a small chamber, from which the air is exhausted by a fan. The current of air, the strength of which is regulated at will, removes the dirt, dust and other extraneous matter, which is carried into a separate room. After being thus thoroughly cleansed the hay is passed between grooved rollers, which break down and soften—without pressing out the juices—all the hard, woody fibres which it may contain; it is then carried on an endless elevator to a powerful press, where two hundred and fifty pounds of hay are compressed into a neat, handy bale of nine cubic feet. All this process is accomplished, from the cutting of the crude hay to tying the bale, at the rate of two tons per hour.

The manifold advantages of the invention are apparent. The consumer gets an improved forage full twenty-five per cent. more nutricious than crude hay, and at a reduction of costs of storage and transportation of from forty to fifty per cent., and the food is all ready for consumption without the intervention of the cutting box. The benefits accruing to the producer are equally great, for the concentration of the material into smaller bulk reduces the cost of transportation, and, as a consequence, extends the area of production. Hay prepared by this process will bear the cost of transportation to market three hundred miles further than that put up in the ordinary bales. Thus vast bodies of first class grass lands may now be devoted to hay making, which, in the long run, will be found more profitable than grain.

While in Newark we had the curiosity to see weighed the wooden slabs taken off of fifteen hundred pounds of hay baled in the usual manner. It tipped the beam at one hundred and eighty-seven pounds. In this case the consumer had to pay a cent and a quarter per pound—the price of the hay—for a lot of worthless, second-growth black-jack oak, whereas, the thin iron or wooden bands on the Brown bales weigh but two and a quarter pounds to the bale. The owners of the glade lands of the Alleghany can now, through this admirable invention, bring their unrivaled grass lands into full productiveness. The farmers of the Northwest should form neighborhood companies and work the patent on joint account; and those of the fine grass growing region of Piedmont, Virginia, should do likewise, and, while they enrich themselves, save the Old Dominion from the agricultural disgrace of importing hay from abroad.—*Turf, Field and Farm.*

Manure the Test of Good Farming.

We farm for profit as a rule, however many exceptions there may be. This profit, which we all seek, comes from the sale of the products of the land, or from that of animals fed upon them. This divides farming operations into two classes, and determines the nature of them, and the system pursued upon different farms, or upon different fields of the same farm. By far the greater number of farmers pursue a mixed system, deriving their income in part from crops sold, and in part from animal products. With such, animal manure is a necessity, and the success of a farmer may be predicated upon the amount he makes and uses. A temporary exception to this rule is seen on some of the virgin lands of the West, and wherever apparently inexhaustible fertility of soil renders manure superfluous.—Where a system of green manuring for wheat and Indian corn, with the addition of lime and plaster, and perhaps bone dust occasionally, is sufficient, with good tillage, to maintain fertility, farmers have an economical substitute for animal manure. This system may often be profitably applied to "out fields," and occasionally to entire farms. Manure—barn-yard manure, or more properly, barn-manure, for the yard is a poor place, at best, to make it—regarding both quantity and quality, must be considered the measure of good farming, and the test of success.—*Amer. Agriculturist.*

Preserving Potatoes.

If grown in a lime soil, or with some fertilizer containing lime, as wood ashes, or some compost of which lime is a part, in the hill, we have them in perfection. What folly not to preserve them in the same perfection, the year round, or at least till the next year's crop is ready to take their place, if this can be done. But can it? Yes.

How? Look at an often-observed fact, and you will have the secret. When a tuber is left in the soil over winter, if not too near the surface, where it will freeze and thraw too many times, it is always found, when ploughed out in spring, in a fine state of preservation —not wilted—sound and as hard as in autumn —cracks open in boiling—has all the mealiness and fine flavor of the previous October —in short, has retained all its fine qualities unchanged from October to May. It is always so with tubers thus wintered, as thousands have observed.

Now let us look at the attendant conditions in which these tubers have been so finely preserved. They were not sunned. Some think it well to let potatoes lie under a scathing September or October sun five or six hours before storing them. They could hardly do a thing more calculated to hasten a deterioration.—Every moment of sunshine on potatoes, when harvested, injures them. They were not aired, for, being left in a soil compacted by the fall rains, little air could circulate among them. They were in total darkness all winter. They were moist by reason of the fall, winter and spring rains and melting snows. They were cool, nearly to the freezing point, and sometimes below it. They have then, coolness, moisture, darkness, little air and no sun as the attending circumstances or conditions of their perfect preservation. If this does not teach us a lesson, it is because we are not quick to learn.

But there is another fact, tending to the same conclusion. There are farmers who, for a long series of years, have practiced as follows: dig their potatoes late, carry them at once to the house, dump them through a side window into the cellar, with all the soil that naturally attaches to them, and then let them be till wanted for use, a part of them as late as the following June, taking care to keep the cellar windows open fall and spring, and to open them in mild weather during the whole winter.

It happens that those which fall near the window retain most of the moist soil that falls with them, and are almost as completely imbedded in earth as are the stray tubers left in the field till the spring ploughing. Now if that portion of the year's stock which is thus imbedded in the moist soil be left to the last, these are found by many years' experience to remain fresh and good, hardly at all wilted; eyes hardly swelled till about the first of June. This implies a cold and damp cellar; and when these points can be obtained there is not the least difficulty in a perfect preservation of the potato till as late as from the 1st to the 15th of June. The conditions, if we look at them, will be found to be nearly the same as in the other case—no sun, little air, little light, moisture, coolness.

Now it cannot be necessary to describe minutely how these conditions can be secured, for the potatoes you would preserve, in all their autumnal excellence, for spring and summer use. Let every one devise the best method for his own case. One who has a cool, damp cellar, so fitted with windows that he can easily keep the temperature low at all seasons, may find that the best place to pack away potatoes for spring and summer use. Another may find it better, in his case, to bury them, mixed with moist soil, in the earth. By throwing an extra quantity of straw over them in winter, and so covering them with straw or chaff that the sun will not thaw it till late, he may preserve them almost at pleasure; for so long as the ground in which they are imbedded is kept cold, they will neither grow nor wilt, nor will they lose any of the fine qualities they had the previous autumn. If the potato hole were on the north side of a building, or if a temporary structure of rough boards were placed over it to keep off the sun, either of these would be a help. I will only add that if those who have a fine crop of potatoes will devise some way to protect them from the sun, air and light, from the moment they are dug, and to keep as many of them as are designed for spring and summer use cool and moist till the day they are to be cooked, "they will find their account in it."—*Prof. J. A. Nash.*

A horse over 28 years old, and which had been used as a team horse by one firm for nearly 20 years, dropped dead in harness a few days since in Muscatine, Iowa.

The American Farmer.

Baltimore, November 1, 1868.

TERMS OF THE AMERICAN FARMER

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PUBLISHED BY

WORTHINGTON & LEWIS.

New Office, 4 South Street,

Near Baltimore Street,

BALTIMORE.

Death of Thomas B. Lewis.

It is our sad duty to record the death of Thomas B. Lewis, whose name has been associated with that of the writer in the publication of the *American Farmer* since January, 1860. He died at his residence in Baltimore on the evening of Wednesday, 14th of October, in the 40th year of his age. A lingering and painful illness had prepared his family and friends for such an issue, but to them and to the community in which he lived, there is no reparation for the loss they sustain, and no balm for their grief, save the assurance that their loss is his great gain.

Mr. Lewis, being otherwise more profitably engaged, has taken no active part in the management of the *Farmer* since its re-issue in '66; we have had the best opportunity, however, of knowing him, and it has not been our privilege to know a man truer to all the relations of life, or one who worked more faithfully up to his convictions of duty. To whatever he had to do, he brought a clear head, an honest heart, and a steadfast will. He loved the things that are 'true,' and 'honest,' and 'just,' and 'pure,' and 'lovely,' and 'of good report,' and his blameless life showed the influences under which he walked continually. He has finished his work early, and the Master whom he served has called him to his rest.

The little that the laboring man hath, is as much his *all* as his millions are to the satrap.

The Yield of Wheat.

The following is the latest monthly report of the statistician of the Department of Agriculture:

"WHEAT.—The correspondence of August and September has been very voluminous and indefinite concerning wheat, furnishing numerous and contradictory elements in a calculation of quantity. Statements of disappointed expectations in threshing are sufficiently abundant in the South, in Wisconsin and other parts of the West, to furnish themes for agricultural croakers; a little rust here and there, the chinch bug, and other causes of failure are found; the grasshopper at certain points in the distant West has been a burden to wheat growers. On the other hand, cases are mentioned of a three-fold acreage with half an average yield, giving a fifty per cent. aggregate increase notwithstanding the loss; numerous returns declare the present the largest crop in many years; and the majority, in view of the general increase in acreage, show a better result than that of last year, after accounting for losses in the yield. It may be stated, however, that the average yield per acre of the whole country is scarcely equal to that of 1867, but the increased area sown will secure an aggregate somewhat larger than the product of that year."

That "the average yield per acre of the whole country is scarcely equal to that of 1867," when we remember what the yield per acre of 1867 was, is a somewhat lame conclusion of a paragraph which sets out with a sneer at "agricultural croakers." We may be fairly classed with those whom Mr. Dodge is pleased to call "croakers," because we find ourselves constantly obliged to raise a voice against the exaggerated reports of crops, in which the interested and the ignorant make common cause against the grain producer. Year after year, the Press teams with reports of the growing and lately harvested crops, which are gotten up systematically by speculators, and imposed upon publishers and the community for fraudulent purposes. It is a thing easily done, because every body, almost, is interested in believing such reports.

This year, it was especially easy, because of the great growth of straw. There was "ocular" proof to the superficial observer of a great wheat crop; but no thoughtful man could have been deceived by such a mere

"show" of a crop. Before the gathering of the harvest we expressed in our July number our distrust of a yield of grain, reasoning from the forced growth of straw which a widely extended rainy season had caused. When to this was added the blasting heats that dried off the immature grain, we had sufficient assurance that so far as these combined causes extended, there must be just the result that was indicated by reports from the early threshing, which we published in our issue of 1st August.

At the date of the report from the Department, 19th of September, the accounts furnished from all parts of the country made it appear that these causes, with "a little rust here and there, the chinch bug and other causes of failure," "have furnished themes for agricultural croakers;" and the statistics have also brought down the enormous crop that the community has been led to expect, to a yield per acre "scarcely equal to that of 1867."

The Frederick County Exhibition.

It gives us much pleasure to be able to report a very successful Exhibition of the Frederick Co. Agricultural Society. A very large attendance of visitors were attracted to the beautiful grounds of the Society, and were well rewarded, especially by the exhibition of cattle and horses.

Many of the leading breeders in the State were present with their stock. Mr. Devries, Pres't of State Agr'l Society, had a beautiful herd of Alderneys, and Messrs. David Menhart, Wm. M. Todd, Robert Moore, Wm. T. Preston, Edwd. Shriver, John D. Richardson and William Oler, also exhibited Alderneys.—Governor Bowie, and Mr. Hickey of St. Mary's College, Sam'l Pents, B. F. Snouffer, S. T. C. Brown, J. Eichelberger and E. M. Thomas, exhibited Devons. John Merryman, his Herefords. Clarence Hilleary and John Loat, of Frederick Co., exhibited Durhams.

The horses, of which there was a fine collection, embraced light and heavy draft and blooded stock.

The six magnificent animals of the Percheron stock, imported from France by Wm. T. Walters, Esq., of Baltimore city, attracted a great deal of attention, and were universally admired. But perhaps the most beautiful animal on the grounds, although there were many of most faultless proportions, was the thorough-bred "Conductor," owned by Col. J. W. Fairfax, of Virginia, who was an officer on General Lee's staff during the late war. This splendid animal attracted a crowd as he was led about the grounds by the groom, and divided the honors with the six grey "Percherons" as they moved slowly and majestically about. Sam'l Worthington, of Baltimore Co., exhibited a fine pair of closely matched mares, and Governor Bowie a beautiful thoroughbred, "Eugene."

Inside the race track a great variety of agricultural implements and labor saving machines were exhibited. The principal exhibitors were: Calvin Page and C. Young, of Frederick; E. Whitman & Co., John Zimmerman, John M. Griffith & Co., R. Sinclair & Co., and Samuel N. Olwine, of Baltimore.

The race for $500 was won easily in three straight heats, by Johnson's horse Patchen, Jr., of Baltimore, in 2:45¼, 2:42¼ and 2:48.—The weather was fair and cold.

Second Annual Exhibition of the Virginia Horticultural and Pomological Association.—We are indebted to the *Richmond Whig* for a full report of the proceedings of this Association. We find the following interesting item among them:

A VALUABLE GRAPE.—The following letter needs no preface:

BIG LICK, ROANOKE COUNTY, VA.,
September 19th, 1868.

Col. Wm. Gilham, President Virginia Horticultural Society:

DEAR SIR: I send you a small package of Joplin's Peaks of Otter grapes, a native grape of the Blue Ridge in Virginia, I have cultivated thirty-five years in my garden and on the farm, on rich low grounds and other places.

I have never had a failure—always had a good crop, and have never known it to mildew or rot nor any other disease. The vine is a luxurious grower and great bearer. It makes fine wine without the addition of anything. The leaves and other things plainly show it is none of the fox grape species.

The grapes sent are not fully ripe, and would not be under two weeks.

I have long since been fully satisfied that we in Virginia must rely mainly on the native grapes of Virginia for wine-making. The Blue Ridge of Virginia alone furnishes an endless variety; now is a favorable time to make selections. I have several other varieties, which will be brought into cultivation next year, and several will be producing grapes. I feel a deep interest in your society.

Most respectfully, yours, &c.,
JAS. W. JOPLIN.

Philadelphia Butter.

From various sections of the Union, committees have visited Philadelphia the past season, in order to discover wherein consists the proverbial excellence of Philadelphia butter. The New York committee visited one large dairy where Alderneys are kept, and thought *that* the principal "secret." They told how he "kept his milk," how "long he churned," how "cold the water" in which the milk was churned, how much "arnatto" was used, and so forth. It is quite clear this committee came and looked on, but did'nt see much.

There has been to Philadelphia also a Western delegation. What they saw is told in the Illinois papers. Their views of the great point differ altogether from the Eastern one, and are full as wide of the mark.

Southern friends have also been in search of this modern philosopher's stone; and from a report in a Southern paper, we think they get nearer the mark. They say the "superior quality of the butter depends on a number of very small but very important, minute processes, not one of which a good butter maker allows to be neglected."

This is the truth. There is little other secret but this. Our best butter women have been famous for their cleanliness and persevering attention to all the little details of manufacture—good habits, which the abundance of cool spring water on most of our farms have aided and abetted. This is the whole secret—in a "milk pan."—*Weekly Press.*

Baltimore Butter.

Philadelphia butter has great fame undoubtedly, and, to some extent, deserves it. We mean by this, that there is a limited supply of first rate butter in the Philadelphia market, made on first rate dairy farms, by first rate dairy women; and the same can be said of Baltimore, with the difference, perhaps, that the best Baltimore butter scarcely reaches the market at all, but is sold at great prices before it gets there. The special secret in the manufacture of butter of the best quality, is neatness and cleanliness in the dairy, almost fanatical. Good cows, rich pasture grounds, and all of those "small but very important minute processes" spoken of above, all together, will not avail to make the best butter without that crowning dairy virtue of exact cleanliness.

There are more fine dairies of easy access to Philadelphia than to Baltimore; but in Philadelphia, as in our own city, good butter is the exception not the rule.

An intelligent writer, familiar with the Philadelphia market, says he rarely meets there with what he considers first class butter, and that he and others would "cheerfully pay ten or twelve cents a pound over and above the ruling price of ordinary printed butter" for what they would consider the best. He makes special complaint of the want of a supply of butter in winter. The truth, therefore, seems to be that there is really no supply of good butter in any of the great markets, and what is really good is bought up before it gets to market, at high prices. What goes to market under the name, varies from second or third quality down to the lowest sort of grease that bears the appearance of butter.

Not only are our own city markets not supplied, but it is often we think that farmers' families fail to supply themselves with what may be called good butter.

As to butter in winter, while for ourselves we prefer good fall butter, well packed and moderately salted, to the best winter-made butter, there is no serious difficulty in making really good, rich butter in winter, if cows are properly fed with rich food. Corn meal should be the basis, and aided by good wheat bran and a moderate supply of roots.

A butter maker near Philadelphia says: "I have my cows to come in profit about March, when I commence to feed them on cut feed, corn meal and wheat middlings mixed, which I continue to feed till I turn out to pasture, when I feed four quarts of corn meal per cow per day for a month or six weeks. I generally sow corn to cut for my cows when pasture gets short, which I find pays well. We never allow the milk to stand to cream over forty-eight hours, skimming it twice a day, and keeping the cream in the coolest place in the milk house. We churn once a week. We like to have the cream at a temperature of about 60 before commencing to churn, when it will require about ten minutes to bring butter. Immediately after taking the butter from the churn it is salted and worked; in the evening it is well worked again, and on the following morning it is worked for the third time, and done up ready for the next day's market.

Before pasture we flavor our butter with carrots, grated and stewed up in new milk, strained and left to get cold. It is put in the cream before churning."

Book Table.

How Crops Grow—a Treatise on the Chemical Composition, Structure and Life of the Plant, for all Students of Agriculture. By Samuel Johnson. New York, Orange Judd & Co.—This is an excellent introduction to the systematic study of agricultural chemistry. The author assumes no previous knowledge of the science on the part of his readers. He therefore adopts the French plan of "commencing at the commencement." He examines first the chemical elements of which the tissues and secretions of the plant are composed. These he describes briefly, but with sufficient detail for the purposes of the ordinary reader, who can afterwards fill up the outline thus sketched for him, by the perusal of fuller and more elaborate treatises. Our author then proceeds to describe the vegetable products built up from these elements. The nature of his plan of course precludes any exhaustive description of these compounds, still he gives such directions that the student, with a little experience in chemical manipulations, and access to an ordinary laboratory, can prepare and recognize them for himself.

The second part of the book is an introduction to vegetable physiology. While in some points we should like to see it fuller, yet it is in the main a correct exposition of modern views upon this subject. The author seems mainly to have depended upon German authorities, and does not appear to have paid that attention to recent French researches which their importance demands. Perhaps this may be made up to us in his forthcoming volume, called "*How Crops Feed.*" The anatomical details are not as full as they might be. The illustrations, though not so numerous as most readers would desire, are very good, though we can see no necessity for the frequent repetition of the same figure. The physiological disquisitions are more satisfactory, though even here a greater fullness is desirable. The tables at the end of the book are exceedingly valuable, and have been very carefully compiled from a large number of observations.

Altogether, we cordially welcome the book as an important addition to our agricultural library. We do not, however, admire the action of the publishers in leaving out the date. It looks too much as if they intended to keep the edition running after it becomes obsolete, a fate which the best books must incur in the present rapid progress of science.

The Tim Bunker Papers, or Yankee Farming.—Published by Orange Judd & Co., 245 Broadway, N. York.—We see nothing in the matter of these papers to make amends for the very bad language which is their chief characteristic. In the Yellow Plush Papers, or in Artemus Ward, where the spelling is perverted to make true humour more grotesque, we can tolerate it; but when a writer, absolutely destitute of humour, undertakes to make bad spelling a substitute for it, we are impatient alike of the stupidity and the spelling.

The preface says of these papers: "They are a humble attempt to represent the average wisdom of the Connecticut farmer." Do they represent too, the average spelling and style of those who have been trained in the famous New England schools? Are boys, moreover, so apt in learning the English language, that we can afford to confuse their minds with such wretched caricature of English words as the following?

"A salt mash"—"a leetle miraculus, ain't it"—"new fangled consarn"—"ye don't expect that door will shet itself, and keep water eout, dew ye?"—"tried time and agin, and allers failed"—"abeout their naburs"—"abeout skools"—"And blame him, he'll du it neow, ye see, for he is a master hand to carry his pint"—"Neow du tell, responded Kier, hitting his horse a smart lick; git up old hoss, this ain't a safe place for yew," &c., &c.

City Hotel, Frederick, Md.—A card of the above named hotel will be found in our advertising columns.

We would say to those of our readers who purpose visiting Frederick at any time, that the City Hotel is one of the best in the State.

The superior sleeping accommodations, and bountifully supplied table; the choice wines and the large corps of attentive waiters, all reflect much credit on the gentlemanly proprietor (Mr. Carlin) and convince us that *he* at least, "*knows how to keep a hotel.*" We wish him a full house, at all times.

It is said that rats may be effectually driven from any building by sprinkling their places of resort with yellow ochre.

Men talk of killing time; but alas! it is time, that is killing them.

Tin Pails for Dairy Purposes.

A resolution was passed at the recent Dairymen's Convention in this city, condemning the use of wooden pails for the dairy and the substitution of tin pails in their place. A similar resolution was passed by the Ohio State Dairy Association last year. The wooden pails is a great nuisance, and causes a great deal of trouble with the milk every year. It is very difficult to keep the wooden pails clean, and when entrusted to hired help, as is usually the case, they are not thoroughly cleaned half the time during the dairy season. Many merely rinse the pails with cold water, and hence particles of milk are liable to be left in the corners and about the sides of the pail, which, when exposed to the air, decompose and act as ferments upon the new milk. Of course the flavor of cheese is impaired from this source.

It seems almost impossible to convince dairymen of the importance of absolute cleanliness in regard to the treatment of the milk from the time it leaves the cow till it reaches the factory and is made into cheese.

We have a letter from Messrs. Anderson & Son, of London, stating that the fact is more and more apparent that the American cheese cannot be held for any considerable time without the loss of flavor. This, they say, the London dealers are now finding to their cost. Now really there is no necessity for this state of things. We have manufacturing skill enough, and we believe manufacturers generally would do their duty if farmers would only provide good pure material to work up. The discrimination in quality and flavor of cheese will be greater next season than ever before, and it stands dairymen in hand to begin a reformation of s'ovenly practices at once.—Let the old wooden pail be cast out of the dairy and tin only used for milking and carrying milk. The tin pails should be made with round corners at the bottom, so as to be readily cleaned. They should be made so as to nicely fit into a wooden pail, which will then serve as a protection to the tin. When arranged in this way the pails will last many years in a dairy, and the time gained in cleansing when compared with the wooden nuisances will about pay the cost of the pails the first year.

This ma'ter should be seen to at once. Let us have an improvement the coming year that will fully sustain the dairy interests of the country.—*Utica Herald.*

How to Quiet a Horse when being Cleaned.

In answer to an "Equestrian," first contrive so that the horse shall not hurt you, then teach him that you are not going to hurt him. It is almost thin-skinned horses that become savage while being cleaned. Make out of four inches of a spade handle, or a rolling pin, a bit so large that the horse cannot close his mouth, common brass rings screwed into each end of the wooden bit, will enable you to fasten it to the headstall. This alone will generally make a horse quiet; it was Rarey's plan, and seems to occupy the horse's attention. But if he is very restive, put on knee caps, strap up one leg, and clean him on deep litter, so that if he falls he may not hurt himself. Then take a sponge and wash him all over with or without soap, according to his condition; dry him with a coarse cloth; after washing a hard brush is necessary.

If he will stand it, use the usual hay wisp, but if he is very tender skinned be content with the cloth and a very soft brush, which will be quite enough for a horse with a fine silky coat. Washing in hunting stables is made a great ceremony, performed by two grooms with hot water and soap, while a boy stands ready to clothe each part when finished, but I am convinced that all horses in condition may be safely washed in cold water.—Messrs. Sangers, the circus proprietors, have a stud of eighty horses, including several thoroughbreds; for some of these they have refused offers in three figures. Two purchased at General Angerstein's sale, cost each, unbroken, over 100 guineas.

These horses are all washed with cold water twice a day, frequently after a journey of twenty-five miles, and they are more healthy than any stud I ever saw. Yet as they never stop more than two days at any place for nine months of the year, they are always at work. Since seeing this example, I have treated my own horses in the same way, even after driving fifteen miles at best pace, and with most satisfactory results. It must be remembered (Mr. Frank Buckland will tell why) the circulation and power of reaction in a horse is much greater than in a man.—*Land and Water.*

Andrew S. Fuller, author of "Small Fruit Culturist," says that with him coal ashes are worth $3 or $4 a load, especially on sandy land.

For the "American Farmer."

Fertilizers.

HARRISONBURG, VA., Sept., 1868.

Col. G. A. Porterfield:

MY DEAR SIR: Your letter bearing date Sept. 6, has just been received, and but for that unaccountable delay, would have been answered long ago. You spoke of my having used Zell's Superphosphate, and ask my opinion of it, "as compared with other fertilizers." The fertilizer used by me was not *Zell's;* I used *Baugh's Raw-bone Phosphate*, and I have looked upon the experiment as quite a success. In August, 1866, I had a field of 26 acres, upon which I used the above phosphate with wheat. The field was rather thin and neglected, partly on account of the war. The year before, it had been put in wheat by a tenant, and I thought too late and badly done. The result was less than 200 bushels. There was not much grass on the field; about one-half of the field was a stiff clay, the other half, what we call here, red land, but not first quality; the very dark red being our best.—I had the field well ploughed in August, then harrowed two ways, and seeded with a drill about the middle of September. I sowed one and a half bushels red wheat, and 200 lbs. of the phosphate to the acre. At the same time, with the drill, I sowed timothy seed about one bushel to 10 acres, and about one peck of clover seed mixed with it; and in the spring I sowed by hand about one bushel of clover seed to 10 acres. I did nothing more to the field. Soon after seeding in the fall, there was a good rain, which brought the wheat up quickly, and it never looked badly for one day from the time it came up until harvest.

The wheat straw grew so tall and luxuriantly, that in the spring, before it headed, I was somewhat apprehensive that it might simply be a huge crop of straw. It did head, however, and ripened regularly and well, the straw being very tall, very bright, and very strong, and what I consider a great point, was ready a week earlier from the use of the phosphate.

The field produced near 700 bushels of very fine wheat, weighing, I think, about 63 lbs. to the bushel. That, you see, approaches 27 bushels to the acre. The heads were uncommonly short. I am satisfied, with the heads as long as I have often seen them, it would have produced 40 bushels to the acre. The cause of the shortness of the heads has been a serious question with me ever since, whether it was the amount applied, the manner of application, or the fertilizer itself containing too much of the particular element for the production of straw, and too little of that necessary for the grain. A tenant on the same farm at the same time (land almost the same, or perhaps a little better, and very well farmed) had a field of wheat, but without any fertilizer. His crop was not half so good, nor even the wheat, in quality, near so good, but the heads nearly twice as long. That may have been partly owing to its standing so much thinner on the ground. One of my chief objects in using the fertilizer, was to improve the field, and get it well set in grass, it being in front of my house. In that particular object I surely succeeded. A more quickly improved field it would be hard to find. The crop of hay which followed the wheat, and taken off this summer, was, before cut, the admiration of the passers-by. The pasture is now green and very fine, not one square foot in the whole field uncovered.

If you have a thin field upon your farm, seed it in the spring in oats with a fertilizer, follow in the fall with wheat, drilled in with fertilizer, not less than 200 lbs. Sow clover in the spring freely, a bushel to 6 acres. If the land is a stiff clay, I would recommend the phosphates. Remember lime is fine on such land. If sandy land, I would use a good guano preparation. You will no doubt get a paying crop of wheat, but what you want is a very fine clover field, which I think you will have. Don't graze or cut that clover, but when it is nearly ready, that is in full bloom, plough it well under, and you can seed it then in wheat if you wish, without a fertilizer.

To my mind, with my view of the subject, and my way of thinking, the farmer who does not take a good agricultural paper, and use the fertilizers with clover; also, the drill, the sulky rake and the reaper, why I would take a good look into his face, to see whether or not that face indicates intelligence, and should probably think him one of that variety of men, who would object to his son learning to read and write, because it would put it into his power to commit a forgery.

Yours truly, &c.,

R. A. GRAY.

Cultivation of Onions.

A correspondent asks for information as to the cultivation of onions. We cannot do better than give the following from our valued contemporary, the *Southern Cultivator*. We are of opinion that this may be made a valuable crop, almost anywhere, if carefully and well cultivated:

"Few persons among us have any idea of the large sums of money annually expended at the South for these seemingly insignificant Northern products. How many are aware that the butter crop of the State of New York for 1860, sold for more money than the whole cotton crop of Georgia, large as it was, and fair as were the prices of that year? The amount annually expended in the State of Georgia for onions, including seeds, sets and for the table, would surprise us, if we could arrive at it. This sum should be saved. More than that, the Northern producer, at certain seasons of the year, can be undersold in his own market. In the months of June and and July onions can be shipped by the car load to New York, and realize a net profit of $1 per bushel. The railroads will carry this and other vegetables from Atlanta to New York for $1.50 per hundred pounds. Onions weigh fifty-five pounds to the bushel. Any one can make his own calculations. This vegetable will pay a good profit at fifty cents per bushel, as 500 bushels to the acre is not a large crop.

"A totally different quality of soil is required for onions for market and for seeds to grow sets. Where sets are to be grown a thin soil is required. A knowledge of this fact would have saved me last year two or three hundred dollars. To grow sets, the ground must be perfectly clean—otherwise it is an endless labor. No grass or weed should be allowed to go to seed upon it the previous year. Twenty pounds of seed are required to an acre. Last winter the seed sold in New York at $2.30 per pound. They should be sowed with the Weathersfield onion drill, about nine inches apart in the rows. This drill opens the furrow, drops the seed, and covers and rolls it. It is an invaluable machine for the gardener —cost before the war $5. The sets must be kept perfectly clean—the seed having been sown as early as practicable in February.—The tools are the scuffle or the push hoe, and an old caseknife, with the blade bent or curved near the end. The working of this crop can be done by children. The product should be somewhat over 100 bushels per acre—ordinary price $5 per bushel. The cost of cultivating an acre with me this year has been about $30. Onion sets can be shipped North at a profit, independent of supplying the home demand. They should be taken up as soon as the tops are dead.

"Onion for market should be planted on the richest ground that can be obtained. The New York gardeners apply 75 tons of barnyard manure, or 1000 pounds Peruvian guano to the acre. Certainly the richer the land the greater the produce—it cannot be too rich.

"Two kinds of onions succeed best with us —the silver-skinned, which is a bad keeper, and should be set out in October, for spring and summer market—the yellow Danvers, which is an excellent keeper. This is also best set out in October, but may be very well set out in February or March. The cultivation is much easier when the sets are planted in the fall. The rows should be one foot apart, and the sets about six inches apart in the row. The tools for cultivation, the same as for sets. The ordinary hoe will throw dirt to the onions, which should be avoided. The ground should be left perfectly level. The cultivation of sets planted in the fall costs little more than the cultivation of cotton. It requires ten bushels of sets for an acre—ordinary price $5 per bushel. The purchase of sets is the chief cost. There will be a few years in which the net profit per acre will not be more than $200—if kept until winter, the profit will be much greater. Last winter, onions sold in Savannah at $8 to $9 per barrel.

"The two points on which most ignorance exists in regard to the onion are the saving the crop and keeping it until winter. There is no difficulty about either, if properly understood.

"When the onions are pulled up, they should be left on the ground for at least ten days—then gathered into conical piles of about three bushels, and allowed to remain about two weeks. After a rain the piles should be opened, take a day's sun, and then be made up again. They should not be moved to the onion house until the dew is off. The least dampness will cause them to rot.

"A cheap pine pole onion house can be built. This will give sufficient air. Shelves made of slats can be put around the interior in tiers. If properly cured, the onions can be put on

these shelves, one or two feet thick. Frost does not hurt them; they cannot have too much air, but must be kept dry.

"The onions will come off in time for a crop of winter cabbages, on the same ground and with the same manuring. These will be as profitable as the onions. An acre of ground will thus give a handsome income. I have this year a forty acre field in corn, which on an average will give twenty bushels per acre. My patch of onion sets will bring more money than the whole field of corn at $1 per bushel.

"We must diversify our labor. The great body of our open land must be grazed. The small portion of it that we do cultivate should be made as rich as possible and planted with whatever pays best in our particular locality, whether it be onions or cabbages, or potatoes, or cotton."

Saving Manure.

Every man of common sense must admit that the rules to be adopted for a rational system of saving manure, must be based on the knowledge of this process that we may lay down the following rules in relation to it:

1st. The ground selected for the disposition of stable manure should be even, in order to permit the equal distribution of the manure on it, and thus secure to the heap uniformity in thickness. Only in this case the process of putrefaction will proceed regularly in every part of the heap, and its body will prove to be of a homogeneous character.

2d. The manure should be protected against the direct rays of the sun, in order to prevent the too rapid advance of the putrefactive process, and a consequent generation of heat which will incur a considerable loss of ammonia. Practical experiments made with equal weights of stable manure exposed to the sun, and with that under cover, show the effect of the latter to be, within a certain time, about twenty-five per cent. greater than the former.

3d. The manure heap should be kept moderately moist; if it be too dry, the degree of heat then produced will volatilize ammonia; if too wet, an acid humus will be formed which being soluble in water, acts very injuriously on vegetation. In order best to attain this end, the ground should be slightly inclined, and all the fluid that runs from the heap be collected in a pit, and from time to time scattered over the heap.—*Dr. Jas. Higgins.*

Wheat and Clover.

I think there can be no doubt that good wheat land is capable of producing a crop of wheat of 40 bushels per acre every fourth year without the direct application of a particle of manure. Mr. Lawes, on the average, from his unmanured plot, gets 60 bushels in four years, and not a pound of the grain or straw or chaff or manure of any kind is returned to the soil. It is done simply by good cultivation, and by not suffering a weed to rob the soil of plant-food.

One of the most experienced millers of Western New York remarked, a year or two ago, that ever since the farmers began to manure their land, the wheat crop had deteriorated in quantity and quality. It seemed a very strange assertion, but when he explained that the farmers had substituted summer-fallowing and ploughing in clover by spring crops, and an occasional dressing of poor manure, it is easy to understand how it might be strictly true. It is not the manure that hurts the wheat, but the growth of spring crops and weeds that rob the soil of more plant-food than the poor, straw-made manure can supply.

We must either give up the practice of sowing a spring crop before wheat, or we must make more and richer manure, or we must plough in more clover. The rotation—corn, barley, wheat, is a very profitable one, provided we can furnish manure enough to produce 80 bushels of shelled corn, 50 bushels of barley, and 40 bushels of wheat per acre in three years. This can be done, but we should either require a number of acres of rich low land, or irrigated meadow, the produce of which would make manure for the upland, or we should have to purchase oil-cake to feed out with our straw and clover hay, or we must purchase artificial manure. Unless this is done we must summer fallow more, and plant less corn, and seed down all our grain crops with clover—the whole of which must either be ploughed under or fed out on the farm, and the manure returned to the land.

I am inclined to think that we might summer-fallow, or rather fall-fallow, for barley, with more advantage than for wheat. Autumn in this climate is much longer and pleasanter for work than the spring. Our so-called summer-fallows are often not broken up till the middle of June, and are sown to wheat the first of September. We have only ten weeks in which to work them, and these include the

busy seasons of haying and harvest. Give up sowing wheat, and we have ten weeks more in which to work the land before winter sets in; and it can be allowed to lie up rough for the frost to act upon it for another twenty weeks, and is then ploughed again and sown to barley. Instead of a ten weeks' fallow, we get an exposure to the decomposing, fertilizing action of the atmosphere for forty weeks or more. Sow this land to barley, and seed it down with clover, and we may expect a good crop; and the clover would almost certainly be splendid. Pasture this in the fall, (not too close,) mow it the next summer, pasture it the next, and then break up and sow to wheat at one furrow and seed down again. Wheat likes a firm foothold and a rather rough or cloddy surface; and a recently inverted clover sod, harrowed lengthwise and drilled in, comes as near the requisite conditions as any other practicable treatment. The objection is that our land is seldom clean enough; but the summer-fallow for the previous barley crop, if thorough, with the heavy crop of clover, will obviate this, and leave the land in admirable condition.

When ordinary clover sod is ploughed in June for wheat, the practice formerly was to plough again as soon as the sod was sufficiently rotted, and again immediately before sowing. Of late years many farmers think it better to plough the land only once—keeping down the weeds by the use of the cultivator and harrow. Of course this is less labor, and it is contended that the crop is as good as from the three ploughings—and sometimes better. A farmer from Indiana wrote me a few days since, that a neighbor had 12 acres of summer-fallow, half of which was ploughed only once, and the other half ploughed twice; the former yielded 23 bushels per acre, and the latter 36 bushels. The wheat sold for $2 per bushel, and he thinks the extra $156 capital pay for three or four days work of a man and team. This is a point on which I should like to hear from those who have had more experience than myself. And another is in regard to the time of sowing. Does early sowing induce early ripening, and thus enable us to escape the midge? My impression is, that we are inclined to sow too early.

I know farmers who sowed, this year, the last week in August. The wheat is tall and spindling, and light colored. I like to see wheat in the fall with broad, dark leaves, that spread along the ground, and not drawn up like crowded plants in a hot bed. The more root growth and the less leaf growth we can get before winter sets in the better for the crop. Late sowing and manuring with some immediately available manure near the surface, will accomplish the object. I believe we are all pretty much agreed that drilling is better than sowing broadcast, and that we can save a peck of seed per acre. There can be no doubt, however, that to get all the advantages of drilling, the crop should be hoed in the spring, and it will be as soon as we have a good combined steerage drill and wheat hoe. —*From discussions at the Rochester Fair, reported in Country Gentleman.*

Cutting Clover vs. Pasturing.

There are few questions connected with agricultural practice, which give rise to more interesting research than the peculiarity so frequently observed respecting the growth of a second cutting of clover, and its influence upon the succeeding corn crop. The speculations which have been advanced, and the explanations which have from time to time been given, appear to contradict so many well established opinions, which have generally been accepted as undeniable, that the question still appears shrouded in mysterious doubt. It is held, and we see no reason to deny its accuracy, that any crop grown upon the land, which may be cut and carried away, must of necessity have a tendency to impoverish the soil from which it is produced. It is true, that if such produce be removed to the homestead or fed off, upon other land, the farm remains uninjured; for this process then simply resolves itself into a transfer from one part of the farm to some other portion, of a bulk of vegetable matter, which being consumed by stock, is partially appropriated by the animals feeding thereon, and the residue again reaches the soil as manure. The peculiarity so frequently noticed in the growth of clover chiefly consists in the act that land from which a second crop of clover has been cut and carted away is in better condition for the growth of wheat, than when the same clover is consumed upon the field on which it is grown. Indeed, we may go so far as to say that even when such clover has been allowed to stand for seed, it is not uncommon for the same result to be observable.

This, we readily acknowledge, conflicts

sadly with many established rules of agriculture; but these facts are none the less correct on that account. It is placed beyond all doubt, that the removal of a crop of clover—and still more so with a crop of clover-seed—must of necessity withdraw from the land much valuable fertilizing matter; and it follows as a natural consequence that the soil cannot be as rich in fertilizing ingredients as it was prior to its growth. And yet we have the paradox existing in the shape of an improvement in the crop of corn upon that portion which has had the clover taken away, as compared with that part on which the clover was fed on the land; or in other words, a diminished degree of fertility is attended by an increase in the crop of corn.

It is clear that there must be some compensating influence to explain this result. It has been maintained by many that when the land is depastured, there is a considerable exposure of the soil to the scorching influence of the sun, and thereby the nature of the soil is said to be drawn out and its quality injured. We have little opportunity of knowing what is really intended by this explanation, and, indeed, it can only be received as exceedingly indefinite. It is easy for any one to understand that manure exposed to the sun may lose some portion of its volatile constituents; but we have no corresponding loss taking place by the action of the sun upon the soil—so far, at least, as any trustworthy researches have hitherto led us to believe.

We must rather seek for an explanation from some other influence more definite in its character and more capable of accurate proof. In the luxuriant growth of clover we have one of the best illustrations known, in the entire scope of agricultural practice, of a crop gathering nutriment both from the soil and from that which is the common property of all—the atmosphere above it. Its roots penetrate into and through the soil, gathering therefrom the nutriment the crop requires, moulding it into new forms, and preparing it for being assimilated in the growth of the crop. This vigorous growth below the surface is accompanied by an equally luxuriant development of foliage above, which very powerfully co-operates in promoting the general increase of the crop; the activity of the roots has a fitting counterpart in the vigorous action of the leaves, which abstract from the atmosphere much valuable fertilizing matter; and thus, by the co-operation established, we have an accumulation of a rich mass of vegetation, valuable either as food or as manure, but its growth has been the result of an active development both above and beneath the soil. Any circumstances favorable for promoting vegetable growth would in such a case act favorably; and on the other hand, any condition unfavorable thereof must tend to diminish the produce.

If we now notice the growth of a crop of clover which is being depastured, we shall observe that many of the conditions of luxuriant growth are wanting; and as a consequence, we cannot have an equally extensive formation of vegetable matter. The irregular manner in which such clover is eaten not only destroys much valuable food which has been produced, but by the sheep eating into the centre of the plant its further growth is frequently effectually stopped, and thus much of the clover perishes, and leaves the soil exposed and in an unproductive condition.—Further than this, the crop has no opportunity of making a bulky growth, the practice being generally to eat it as it is growing, rather than let the crop advance towards maturity, and then be fed off.

It is in the latter stages of growth that the two practices offer the greatest contrast.—When a moderate growth has been secured, the one portion may be set aside for feeding, and the other part reserved for mowing; but, from this moment, the one is subject to a process of a destructive character and the other is permitted to accumulate, with a constantly increasing force, vegetable matter of the richest character. Instead of the plant being plucked in its point of growth, the development goes on uninterruptedly; the soil, instead of being scorched by the rays of the sun, is kept moist by the overshadowing leaves of the clover crop, and thus the growth of the crop is encouraged. The growth, and consequent accumulation of rich vegetable matter, goes on until the period of full growth has arrived, and then the whole, is cut down and removed. In the one case, the growth is interrupted during its most important stages; and, in the other instance, it is encouraged with its fullest luxuriance.

It is perfectly clear that by such luxuriant growth the demands upon the soil have been very greatly in advance of that removed from the soil by the portion fed upon the land;

but we must not lose sight of the fact that the growth above the ground has been proportionate with the growth of the roots in the soil, and that a luxuriant crop of clover leaves such a rich legacy for the succeeding crop in the accumulations of vegetable matter produced by the decay of the clover roots.—When the crop has been fed upon the land, the growth of the clover root has been impeded, and consequently the land is far from being in equally good condition for the growth of corn. True, we have removed from the land a considerable quantity of valuable fertilizing matter in the clover taken from the field; and yet, by the course of management pursued, there remain behind in the soil, accumulations of fertilizing matter of a different nature, but most valuable for the succeeding corn crop,which more than compensate for the loss. The advantages appear all on one side, for most remains where most has been removed; but in the one case we have secured an uninterrupted and luxuriant growth, whereas by the process of feeding the clover, we have kept its growth impeded, and consumed it in such a manner that the land could not receive those stores of rich nitrogenized matter which the clover extracts from the air and adds to the land.

It must be admitted that there are exceptional cases to the more general rule we have referred to; but those variations may generally be shown to be traceable to other causes, and not in any to interfere with the rule. If, for example, the plant is weakly in its character and habit, or has partially failed upon the land, the difference in favor of cutting will be less evident; the closer and more abundant the crop may be, the more fully will the result be in favor of mowing as compared with feeding; and conversely, when the crop gives no evidence of growth, we ought not to look for results of as favorable a character as we should otherwise expect. The secret of the entire difference lies in the fact of an uninterrupted growth being encouraged until the fitting time arrives for its prompt removal.—*Mark Lane Express*, (*Editorial.*)

Suppose every day to be a day of business; for your whole life is a race, and a battle, a merchandize, and a journey. Every day propose to yourself a rosary, or a chaplet of good works, to present to God at night.

Tiptree Hall Farm.

In the early part of last month a deputation from the Midland Farmer's Club, visited Tiptree Hall Farm, by invitation from Mr. Mechi.

From the character of the soil of the county and the general healthy appearance of the wheat crops of the district, it was expected that the Tiptree wheat would present a very creditable appearance, but none of the members of the deputation were, we believe, prepared to see so much good wheat for the whole growth as Mr. Mechi showed them.—The total quantity of land in wheat is 72 acres, the farm comprising only 170 acres, of which 13 are in pasture.

The first field entered contained a piece of about 6¼ acres of rye and vetches, after cabbage, which were being mown and carted off, to be cut up with straw, &c., for the cattle in sheds and the horses. Another portion of six acres was in oats, which were sown in May, the land receiving a dressing of two hundred weight of guano and one hundred weight of salt per acre the previous crop being also cabbage. Next a piece of wheat containing six acres of the club-headed rough chaff variety, a white wheat of good quality yielding and strong in the straw. This crop was after clover mown for hay first, and the aftermath eaten off by sheep, receiving a liberal allowance of rape cake. The clover ley was ploughed twice, and the bushel per acre drilled with the ordinary Suffolk drill (manufactured by Messrs. Smyth, of Peasenhall,) on the 21st of November. Mr. Mechi proposes to take a crop of Rivett's bearded wheat after this year's crop, the second year's wheat being followed by mangold wurtzel.—The next field, 9½ acres, was in wheat, the variety being Rivett's bearded, which was drilled on November 16th, at the same rate per acre before mentioned, the previous crops being white wheat, and the land being manured with two hundred weight of guano and one hundred weight of salt per acre.

Another piece of wheat, containing 11¼ acres, after peas, was drilled on 1st November. These wheat crops were all uniform with well-developed ears, almost entirely free from blight, good stiff straw, and clean, the horse-hoe having been freely used in the spring, and were estimated to produce 50 bushels imperial per acre—Mr. Mechi and his foreman placing the figure even higher; but,

perhaps, the heaviest crop was a piece 13½ acres after beans, well manured for, which promised to be quite 54 bushels per acre.

The lightest crop of wheat was nine acres of red, after mangolds, drilled on December 13th, which seems rather late for the one bushel per acre, but this was estimated to produce nearly forty bushels per acre. This field received the annual dressing of two hundred weight of guano and one hundred weight of salt per acre. In the next field, 6½ acres of wheat, after clover, there is a small portion dibbled at the rate of one peck per acre, on Nov. 20th, which, although planted at the same time as the rest of the field, will not come to harvest so soon by a week, and which looks thinner than the residue, but still a good crop. Captain Hallett, who has had much experience in thin seeding, was of opinion that there would be quite as large, if not larger, produce per acre; but many of the deputation did not concur in this opinion.—There were, 5½ acres in beans, and 6½ in barley, which were fair crops for the season, but which do not call for especial remark. The only roots at present sown were seven acres of mangolds, a very fair crop, which were planted on 17th and 18th April, after wheat, the land being deeply cultivated in the autumn, and heavily manured from the sheds before Christmas, Mr. Mechi never ploughed the land for mangolds in the spring. A piece of about seven acres, upon which a crop of white clover, had been fed off with sheep, was being broken up ready for sowing white turnips, the *modus operandi* being to send the old fashioned Essex wood plough, drawn by three horses first, going about five inches deep, and then following in the same furrow with a subsoil plough, also drawn by three horses, which pulverized the ground to a depth of about nine inches more. A field of peas had been picked green for the London market, producing 240 bushels of peas in the pods per acre, and realizing clear of expenses, £11, 5s. per acre; and this was broken up ready for white turnips, if it could be got ready in time, and a favorable change occured in the weather.

The secret of success in the growth of Mr. Mechi's wheat crops appears to lie in thorough drainage of the land, the removal of all large hedge-rows and timber, (100 trees having been felled last year,) the absence of game, except a few pheasants and partridges, deep cultivation, and a complete pulverization of the soil, thus exposing as much as possible to the action of the atmosphere, and bringing it in contact with the manure applied, the clover leys being all twice ploughed; the application to the root and green crops of a heavy dressing of manure from the sheds, manufactured by cattle consuming rape cake, corn, and other feeding stuffs, the manure being carefully protected from the action of the sun and rain; careful selection of seeds, thin sowing in proper season, and frequent horse-hoeing in spring. With this treatment, a tenacious clayey soil assumes more of a loamy character, and produces in a season like the present, which is peculiarly adapted for it, the successful results chronicled above.

The course of cropping generally adopted on the strong land is: 1, white wheat; 2, Rivett's bearded wheat; 3, mangolds; 4, red wheat; 5, vetches; but sometimes 1, wheat; 2, beans or peas; 3, wheat; 4, mangolds are taken instead; on the lighter land which, is gravelly on a clay subsoil, 1, wheat; 2, peas; 3, wheat; 4, turnips; 5, barley; 6, seeds, is the rotation adopted. The quantity sown per acre is: wheat, 1 bushel; barley, 6 pecks; peas, 2 bushels; beans, 3 bushels; oats, 2 bushels.—*Farmer* (*Edinburgh and London*,) *Aug.* 19.

Steam Cultivators at the Leicester Show of the R. A S. of England.

No one could thoughtfully examine the work done by the steam cultivators in the trial field, and the machinery by which this work was done, without being struck with this—that the soil was turned up and left to lie under the best possible circumstances calculated to allow the atmospheric influence, the best of all cultivators, to act upon the whole mass, and to leave it, after an autumn and a winter in that condition in which very little working of other implements would be necessitated. Wherever deep and careful stirring of the soil has been carried out, there the after-implements are not used much—some not at all. With a fine tilth brought about by the exposure to the rain, air, and sunlight, little need there is for clod crushers and the like; the simplest implements only are required, and little work even from them is demanded. And in view of the advantages of turning up the soil in this way, we are of those who believe that the future of the steam

cultivator is in giving depth, not merely a power to run over a certain and large surface of land. We are no believers in this scratching power of steam. In place of the maximum of surface with a minimum of depth which some deem of such high importance, we would simply reverse these conditions, and say: We shall be content with the minimum of surface, if you only give us the maximum of depth. The powers of fertility lie hidden in the depths of the soil. A grand lesson is conveyed in the fable of the old man, who told his sons that a field he left to them contained, hidden below its surface, a vast supply of gold; but kept back a knowledge of what part this was to be found in. The sons began to dig, and better dig the field, digging deep moreover, always in the hope of turning up the supplies of the precious metal. This was never found; but in the after hig' ly-increased fertility of the field thus so deeply dug, the truth began to dawn upon them that they indeed had struck a mine of wealth, as good as gold. Hundreds of years have rolled over the heads of men since this fable first was uttered, yet we have scarce begun to see the lesson of value which it contains. For years and years we have contented ourselves by merely scratching the surface of the fields, and endeavored by all sorts of expedients to maintain the fertility of the oft-used soil, which could have been at once supplanted by bringing up from below, which are in reality, the hidden treasures of the soil. True, it may be said, and to a large extent truly said, that this deep digging could not be done; the mechanical appliances at hand were not fitted for the work, and the cost of doing it by the exercise of patient manual labor, was so much, as to be entirely prohibitive. But now all this is altered; with steam we have a power to which, indeed, there is scarcely a practical limit; and to those who are desirous to avail themselves of it, we would say: "Dig deep, the gold lies low;" the same lesson, indeed, which the old man in the fable wished to teach his sons. In saying this, and so clearly expressing our opinion that the future usefulness of the steam plough, or cultivator, is in the depth of cultivable soil which it will give us, rather than in its power to run lightly over the surface, we by no means ignore or overlook the objection made to the bringing up of the lower soil, which is so often made by those who believe that by bringing the subsoil up, you do not add to the fertility, but rather tend to impoverish the upper soil, which has been so long in cultivation. But in carrying out deep cultivation, it is worth while remembering that there are two modes of carrying out a system—a right way, and a wrong way; and we do not hesitate to say that in nearly all cases where deep culture has been productive of evil consequences, it has been because it was done in the wrong way.—There is still all the difference between cultivating deep in the right way, and cultivating deep in the wrong way. Again, it does not follow that because you cultivate the soil deeply, you therefore, bring up the subsoil and mix it with the upper soil; deep culture may, and, indeed does, involve deep stirring of, without bringing up to the surface the subsoil, just as to be sure on the contrary it does mean deep breaking up of the subsoil, and bringing this up to the surface, and mixing it with the old soil. This is not the place to enter into a detail statement as to what deep culture really is, suffice it to say, that in deep culture, properly done, lies the future, we believe, of our agriculture, and in the ability to do it cheaply and well, lies the future of the steam cultivating machinery. This was one of the thoughts most strikingly suggested to our minds, by what we saw in the trial fields of Leicester. And another was connected—the wonderfully wide extension of the principle of grubbing or smashing up (as it is now frequently, if not very elegantly called) the soil, in place of turning it over with the plough. It is very suggestive to trace the history of the application of this system of working, the type of which is to be met with in the old fashioned harrow; to note how very slowly it was taken up, how suspiciously it was looked upon for long, and how remarkable was the extent of its use after a certain point in its history had been reached. Nor is it less suggestive to note how dependent this system of working the soil was upon another department of farm work—namely: the deep or thorough draining of it. Without the deep draining of the soil we should never have been able to work the grubbing system of stirring it. The extension or rather the completion of the one led to the extension of the other. The grubbing or smashing up system is only applicable (we here name the term in its strictest sense, namely: as truely and directly applicable) to

the working of dry, or at least drained soils. Under the old regime, when the plough reigned supreme and brooked no rivals near its throne, and when the water was not taken from the land, but the land was lifted out, so to say, from the water, an astonishingly complex series of operations were necessitated to make the soil fitted for a seed bed, and the depth of this seed bed was, from the nature of the circumstances necessarily limited.—But as soon as the system of land drainage had been well carried out, the system of land preparation, by means other than the plough, was within the reach of the farmer; this means being the grubbing or smashing up system. And any one quietly examining the work in this department, which the steam cultivating systems at Leicester did, would have no great difficulty to see that through the means of this system, the farmer will henceforth be able to reach effects, which he might have dreamed of before, but which under the olden times he could never have realized. The considerations suggested by the rapid extension of the system of grubbing or smashing up the soil are really of the highest importance, and it is worthy of note that they are becoming daily more so, and we confess that we should like to see them taken up by the Royal Society. This is, we believe, fully necessary; for it is a curious fact, that already some practical men are beginning to object to the system, because they say it affects the fertility of the soil. This certainly seem to us a very remarkable and utterly unexpected, and should further say unexplainable result of the system. It comes, does such an objection, with all the force of such an utterly unexpected thing, that at present we can do no more than state that it has been made. All the experience we know of, is precisely in the opposite direction.—*Mark Lane Express. Aug.* 17.

A West Bethel correspondent of the *Maine Farmer* says that he can stand at his window and see fifty acres of hops. With a large crop he predicts a fearful decline in prices.

Peas and beans being both rich in nitrogen, are valuable in repairing the waste in the muscles of animals, and are especially advantageous in the production of wool.

Bots in Horses Again.

I see in the last number of the *Homestead*, an article copied from the correspondence of the NEW ENGLAND FARMER, taking the ground that the bots in horses are very injurious to the horse, causing death. But the writer is entirely mistaken in his conclusions on the subject.

From many investigations into the subject, and from the testimony of Youatt, Spooner, Stewart, Dadd, and others, I am perfectly satisfied that the bots never turn upon the stomach until it is so diseased that death is certain.

The stomach of the horse is the chosen home of the bots, and why should they try to make a way out of it, until the oppointed time? He does not feed upon the stomach, but upon the chyme, and only turns upon the stomach to escape death. Nine out of ten of the horses whose stomachs we have examined, have contained bots. Some of those horses had been killed by accident, while in perfect health. We have found the bots eating through the stomachs of those horses, within three or four hours after death, although they were perfectly well till the moment of death. The evidence to me is conclusive, that they in no way injured the stomach until death.

A valuable essay, by Geo. H. Dadd, V. S, on this subject, has recently appeared in the *American Farmer*, and as both he and Dr. Stewart are authority in this country, their evidence is entitled to great weight.

I wish it might put an end to the present system of "doctoring (killing?) horses for the bots." There are hundreds of valuable horses killed by the awful drugging they get to kill the bots, which can't be killed by anything you can put in his stomach.

Mayhew records an instance, in which a portion of the stomach, covered with bots, was corked up in spirits of wine for two years, without killing them. Bracy Clark, an English veterinarian, to whom Mayhew says "the public owe all their knowledge of the bot fly," claims that "the bot is harmless if not beneficial."—*C. W. D., Philadelphia, in the Homestead.*

No people have more reason to be afraid of the approaches of pride, than those, who have made some advances in a pious life. For pride can grow as well upon our virtues, as our vices, and steals upon us on all occasions.

SUNDAY READING.

My dear Saviour, inspire me with the true apprehension of Thy infinite love towards me, who descended from the top of majesty to the lowest degree of servility, didst debase Thyself to exalt me, cloathedst Thyself with mortality to invest me with immortality, wert poor to enrich me, enduredest the reproach of Thine enemies to reconcile me to Thy most justly incensed Father. Could I but truly conceive any part of this immense love, I could not but return more to *Thee*, to *Thine*. I should then forget injuries from my weak brethren, love my most malicious enemies, hate none, but those that undervalue this great goodness, whereas now mine affections are guided by my personal interests.

There is an inexpressible comfort to us that our blessed Saviour thus mingles His trio kingdoms, that he makes the kingdom of Grace and the kingdom of Glory all one; the Church and Heaven all one; and assures us that, if we see Him *in hoc speculo*, in this His glass, in his ordinance, in His kingdom of grace, we have already begun to see Him *facies ad faciem*, face to face, in his kingdom of glory; if we see Him *sicuti manifestatur*, as He looks in His Word and Sacraments, in his kingdom of grace, we have begun to see Him *sicuti est;* as He is in His essence in the kingdom of glory.

To admonish a man in the height of his passion, is to call a soldier to council in the midst of the heat of a battle. Let the combat slack, and then thou mayest expect a hearing. All passions are like rapid torrents; they swell the more for meeting with a dam in their violence. He, that will hear nothing in the rage and roar of his anger, will, after a pause, enquire of you.

Nothing more entirely accords with the constitution of man's nature, than the Christian philosophy, the aim of which, almost entirely, is to recover our fallen nature to its primitive innocence.

A monstro non disputatur contra naturam, is a rule in moral philosophy. A vicious man is a moral monster. We are to declare the nature of man, not from what it is by defection and apostacy, but from what God made it, what it *was*, and what it *should* be.

When once the soul, by contemplation, is raised to any right apprehension of the Divine perfections, and the foretastes of celestial bliss, how will this world, and all that is in it, vanish and disappear before his eyes? With what holy disdain will he look down upon things which are the highest objects of other men's ambitious desires? All the splendors of courts, all the pageantry of greatness, will no more dazzle his eyes than the faint lustre of a glow-worm will trouble the eagle after it hath been beholding the sun.

Christ, as it were, left His Father, when He descended from heaven; and left His Mother, when He departed from the unbelieving synagogue; and He cleaved to His wife, the Holy Church: and these twain are one Body.

Both God and nature did present the woman to the man, as the fittest and the noblest object of creation for him. A man may love a friend, as a brother, as an *alter idem*, another self; but he should love his wife as an *idem idem*, a very same self. Creation, nature, religion, law, and policy, make them undividedly one.

Hath any wounded thee with injuries? Meet them with patience. Hasty words rankle the wound; soft language dresses it; forgiveness cures it; and oblivion takes away the scar. It is more noble by silence to avoid an injury, than by argument to overcome it.

The Athenians, enquiring at the oracle how their commonwealth might become happy, were told, "they should be fortunate, if they did hang their most precious things on their children's ears;" by which was meant, instructing them in the principles of piety and virtue, and, doubtless, the counsel is very proper for us at this time.

None should be so implacable as to refuse an humble submission. He, whose very best actions must be seen with favorable allowance, cannot be too mild, moderate and forgiving.

It is certainly much easier wholly to decline a passion than to keep it within just bounds and measure; and that which few can moderate, almost anybody may prevent.

Prayer is the sweet harmony of the soul in God's ears.